BORD NA MÓNA

F.A.O. Ms. Ewa Babiarczyk
EPA
30/05/13

Re: W0253-01 Clean Ireland Recycling Ltd.

Dear Ms Babiarcyzk,

Further to your letters dated 26th March & 10th May 2013, Notice in accordance with Article 16(1) of the waste Management (Licensing) Regulations, please find responses to your request for further information below.

EPA letter dated 10th May 2013

Article 16(1) Further information, particulars and evidence

1. **Provide a copy of the planning inspector's report associated with planning permission reference No. 09 1270.**

2 no. Planners' Reports are included in this response- the first report, dated 16/02/2010, details the review of the proposed project and the comments on the site inspection carried out. In conclusion the planner concluded no objection to the development.

The second Planners' Report dated 29/07/2010 address the items which were agreed with the applicant which were not to the satisfaction of the Planning Department. The Planner subsequently recommends permission to be granted and stipulates the conditions.

EPA letter dated 26th March 2013

1. ***Provide evidence, others than the manufacturers' specification, that parameters other than NOx, CO, SO2 will no be emitted. Provide and air dispersion modelling assessment for H2S, HCl and HF at the following emission levels, 5mg/m3, 30mg/m3 and 5mg/m3 respectively or at appropriate emission levels that will provide assurance that relevant air quality standards will not be exceeded.***

The air dispersion model has been updated to assess the above extra parameters. A full report is attached. The additional parameters have no predicted significant impact on the ambient air quality using a 14m stack height.

2. ***State what pre-treatment of biogas will take place, if any, prior to combustion in CHP plant or flare.***

By mixing the streams of gas from different fermentation chambers a gas with a consistent methane content is produced. Due to this process the methane content of the mixed gas will be the average of the combined fermentation chambers thus achieving higher process stability. A minimum mixed gas methane content of 57% is aspired to. The desulphurisation of the gas is achieved automatically by the PLC control system. A hydrogen sulfide level of less than $\leq$ 100 ppm is desired. The moist

biogas stays in the gas storage unit for a period of time while cooling to ambient temperature. During this process the water in the gas condenses and is transferred via a siphon water duct (150 mm) from the deepest point of the gas storage unit to the fermentation chamber below. This is process is referred to as passive condensation extraction. Further biogas production takes place in the percolate storage tank. A connection to a fermentation chamber is installed on the ceiling of the percolate storage tank and the biogas is exhausted via a gas compressor. The gas is condensed and routed to the gas storage unit.

Continuous measurement of CH_4, CO_2, H_2S and O_2 levels and gas volume for each individual fermentation chamber as well as the volume and composition of the mixed gas in the gas storage unit is carried out to monitor the line operation. This is essential for optimal control of all processes and any interruptions can be detected and prevented at an early stage. Following this process there is no further pre-treatment of biogas planned prior to combustion in CHP plant.

3. Submit monitoring results, including volumes discharges from 2009 to 2013 for storm water discharge at emission points SW1 & SW2.

(i) Assess the discharge to surface waters in accordance with the water quality standards specified in the European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended.

The volume discharged is not measured at the facility; therefore there is no data in this response.

SWI is a storm water discharge location from a pipe into a drainage ditch at the north of the site. Often during sampling there is a very low level of liquid in the drainage ditch or in the outlet pipe. This can lead to inadvertently disturbing settled solids in order to obtain sufficient sample volume for parameter analysis under the Clare Co. Co. waste permit.

SW2 is a storm water discharge location from a pipe into a small stream at the southern boundary of the site. Often this stream is stagnant, with shallow depth and sampling can be difficult if there is no flow in the pipe or sufficient depth in the stream. SW2 (a) refers to an upstream sample and SW2(b) refers to a downstream sample. Similarly upstream and downstream are shallow in depth with settled solids on the stream bed which are easily disturbed.

The results below extend for the period 2007 to 2013. The parameter limits laid out in 2009 Surface Water Regulations have been included, where relevant. The waste permit sets out limits on the storm water take into account a dilution factor on the receiving surface water. These are higher than the limit

Sep-07

Parameter	SW1a (dis)	SW2a (dis)	SW2b (u/s)	SW2c (d/s)	Surface Water Regs SI No 272 of 2009
pH	8.3	7.6	7.3	7.7	4.5<pH<9.0
Conductivity	529	880	415	879	none defined
COD	258	40	115	76	none defined
BOD	123	4	29	6	High status ≤2.2 Good status ≤2.6
Ammonia	0.05	0.2	0.07	0.15	High Status ≤0.04 Good ≤0.065
Suspended Solids	4076	45	43	298	none defined
Total Phosphorous	5.45	0.07	3	1.04	High Status ≤0.045 Good ≤0.075
Oils/Fats/Greases	3	12	3	18	none defined

Mineral Oils	<10	<10	<10	<10	none defined

Dec-07

Parameter	SW1a (dis)	SW2a (dis)	SW2b (u/s)	SW2c (d/s)	Surface Water Regs SI No 272 of 2009
pH	7.6	7.2	6.4	7	4.5<pH<9.0
Conductivity	773	670	475	462	none defined
COD	19	10	112	74	none defined
BOD	6	<2	<2	<2	High status ≤2.2 Good status ≤2.6
Ammonia	2.19	0.59	0.75	0.25	High Status ≤0.04 Good ≤0.065
Suspended Solids	102	23	34	25	none defined
Total Phosphorous	0.2	0.14	2.05	0.18	High Status ≤0.045 Good ≤0.075
Oils/Fats/Greases	15	10	9	33	none defined
Mineral Oils	<10	<10	<10	<10	none defined

Feb-08

Parameter	SW1a (dis)	SW2a (dis)	SW2b (u/s)	SW2c (d/s)	Surface Water Regs SI No 272 of 2009
pH	7.7	6.9	6.6	6.8	4.5<pH<9.0
Conductivity	721	741	323	415	none defined
COD	62	22	130	128	none defined
BOD	4	<2	<2	<2	High status ≤2.2 Good status ≤2.6
Ammonia	1.46	0.61	0.08	0.22	High Status ≤0.04 Good ≤0.065
Suspended Solids	111	17	<5	<5	none defined
Total Phosphorous	0.17	0.18	0.16	0.19	High Status ≤0.045 Good ≤0.075
Oils/Fats/Greases	<1	2	22	<1	none defined
Mineral Oils	<10	<10	<10	<10	none defined

May-08

Parameter	SW1a (dis)	SW2a (dis)	SW2b (u/s)	SW2c (d/s)	Surface Water Regs SI No 272 of 2009
pH	7.5	7.2	7.1	6.7	4.5<pH<9.0
Conductivity	1276	1184	1009	462	none defined
COD	86	42	106	90	none defined
BOD	37	3	19	3	High status ≤2.2 Good status ≤2.6
Ammonia	3.5	0.52	0.72	0.36	High Status ≤0.04 Good ≤0.065
Suspended Solids	70	40	652	94	none defined
Total Phosphorous	0.44	0.43	10.4	5.7	High Status ≤0.045 Good ≤0.075
Oils/Fats/Greases	7	30	22	1	none defined
Mineral Oils	<10	<10	<10	<10	none defined

DRO	<10	<10	<10	<10	none defined

Nov-08

Parameter	SW1a (dis)	SW2a (dis)	SW2b (u/s)	SW2c (d/s)	Surface Water Regs SI No 272 of 2009
pH	7.9	7.1	7.1	6.4	4.5<pH<9.0
Conductivity	550	969	280	517	none defined
COD	27	54	105	102	none defined
BOD	7	4	<2	<2	High status ≤2.2 Good status ≤2.6
Ammonia	0.17	0.72	0.03	0.25	High Status ≤0.04 Good ≤0.065
Suspended Solids	33	27	13	13	none defined
Total Phosphorous	<0.05	0.12	0.05	0.12	High Status ≤0.045 Good ≤0.075
Oils/Fats/Greases	15	2	<1	8	none defined
Mineral Oils	<10	<10	<10	<10	none defined
DRO	<10	<10	<10	<10	none defined

Jun-09

Parameter	SW1a (dis)	SW2a (dis)	SW2b (u/s)	SW2c (d/s)	Surface Water Regs SI No 272 of 2009
pH	7.1	6.5	6.7	6.5	4.5<pH<9.0
Conductivity	823	510	599	512	none defined
COD	303	31	8070	233	none defined
BOD	164	12	339	5	High status ≤2.2 Good status ≤2.6
Ammonia	5	0.79	3.53	0.85	High Status ≤0.04 Good ≤0.065
Suspended Solids	27	153	22992	1198	none defined
Total Phosphorous	0.4	0.24	307	1.02	High Status ≤0.045 Good ≤0.075
Oils/Fats/Greases	12	2	3	<1	none defined

Oct-09

Parameter	SW1a (dis)	SW2a (dis)	SW2b (u/s)	SW2c (d/s)	Surface Water Regs SI No 272 of 2009
pH	7.4	6.7	6.6	6.4	4.5<pH<9.0
Conductivity	655	744	447	456	none defined
COD	366	25	370	76	none defined
BOD	30	<2	8	<2	High status ≤2.2 Good status ≤2.6
Ammonia	1.9	0.78	0.88	0.78	High Status ≤0.04 Good ≤0.065
Suspended Solids	491	33	541	72	none defined
Total Phosphorous	1.04	0.34	6.72	0.54	High Status ≤0.045 Good ≤0.075
Oils/Fats/Greases	16	<1	<1	10	none defined
Mineral Oils	1.27	0.1	<10	0.07	none defined

DRO	2210	480	<10	290	none defined

Dec-09

Parameter	SW1a (dis)	SW2a (dis)	SW2b (u/s)	SW2c (d/s)	Surface Water Regs SI No 272 of 2009
pH	7.5	6.3	6.5	6.4	4.5<pH<9.0
Conductivity	611	640	272	348	none defined
COD	16	17	125	113	none defined
BOD	<2	<2	<2	<2	High status ≤2.2 Good status ≤2.6
Ammonia	0.66	0.62	0.42	0.29	High Status ≤0.04 Good ≤0.065
Suspended Solids	24	20	39	<5	none defined
Total Phosphorous	0.07	0.18	0.49	0.28	High Status ≤0.045 Good ≤0.075
Oils/Fats/Greases	9	9	5	8	none defined
Mineral Oils	<10	<10	<10	<10	none defined
DRO	245	<10	<10	<10	none defined

Mar-10

Parameter	SW1a (dis)	SW2a (dis)	SW2b (u/s)	SW2c (d/s)	Surface Water Regs SI No 272 of 2009
pH	6.8	6.6	6.7	6.9	4.5<pH<9.0
Conductivity	1142	806	206	322	none defined
COD	772	22	120	106	none defined
BOD	455	4	<2	2	High status ≤2.2 Good status ≤2.6
Ammonia	7.6	0.68	0.06	0.14	High Status ≤0.04 Good ≤0.065
Suspended Solids	88	22	7	16	none defined
Total Phosphorous	1.81	0.24	0.09	0.18	High Status ≤0.045 Good ≤0.075
Oils/Fats/Greases	1	10	2	14	none defined
Mineral Oils	23	<10	<10	<10	none defined
DRO	234	<10	<10	<10	none defined

Jul-10

Parameter	SW1a (dis)	SW2a (dis)	SW2b (u/s)	SW2c (d/s)	Surface Water Regs SI No 272 of 2009
pH	7.5	7.3	6.9	7.1	4.5<pH<9.0
Conductivity	661	1105	329	769	none defined
COD	76	62	102	60	none defined
BOD	30	23	5	20	High status ≤2.2 Good status ≤2.6
Ammonia	0.36	0.37	0.12	0.23	High Status ≤0.04 Good ≤0.065
Suspended Solids	56	10	66	24	none defined
Total Phosphorous	0.37	0.15	1.95	0.25	High Status ≤0.045 Good ≤0.075
Oils/Fats/Greases	10	6	4	10	none defined
Mineral Oils	<10	<10	<10	<10	none defined

DRO	53	633	138	90	none defined

Aug-10

Parameter	SW1a (dis)	SW2a (dis)	SW2b (u/s)	SW2c (d/s)	Surface Water Regs SI No 272 of 2009
pH	7.2	6.6	6.9	6.6	4.5<pH<9.0
Conductivity	646	604	521	601	none defined
COD	46	39	2590	138	none defined
BOD	15	6	533	18	High status ≤2.2 Good status ≤2.6
Ammonia	3.5	0.79	1.97	1.14	High Status ≤0.04 Good ≤0.065
Suspended Solids	236	28	25652	85	none defined
Total Phosphorous	0.83	0.26	96.45	0.82	High Status ≤0.045 Good ≤0.075
Oils/Fats/Greases	6	1	4	4	none defined
Mineral Oils	<10	<10	<10	<10	none defined
DRO	<10	148	706	76	none defined

Nov-10

Parameter	SW1a (dis)	SW2a (dis)	SW2b (u/s)	SW2c (d/s)	Surface Water Regs SI No 272 of 2009
pH	7.7	7	6.5	6.6	4.5<pH<9.0
Conductivity	528	1268	238	299	none defined
COD	47	102	113	119	none defined
BOD	9	17	<2	2	High status ≤2.2 Good status ≤2.6
Ammonia	0.14	1.12	0.17	0.22	High Status ≤0.04 Good ≤0.065
Suspended Solids	26	87	<5	40	none defined
Total Phosphorous	0.09	0.48	0.24	0.2	High Status ≤0.045 Good ≤0.075
Oils/Fats/Greases	6	19	32	12	none defined
Mineral Oils	<10	<10	<10	<10	none defined
DRO	<10	<10	<10	<10	none defined

Apr-11

Parameter	SW1a (dis)	SW2a (dis)	SW2b (u/s)	SW2c (d/s)	Surface Water Regs SI No 272 of 2009
pH	7.3	6.5	6.5	6.7	4.5<pH<9.0
Conductivity	551	730	210	350	none defined
COD	111	31	147	112	none defined
BOD	32	3	<2	<2	High status ≤2.2 Good status ≤2.6
Ammonia	0.68	0.66	0.04	0.17	High Status ≤0.04 Good ≤0.065
Suspended Solids	61	21	5	7	none defined
Total Phosphorous	0.53	0.17	0.07	0.25	High Status ≤0.045 Good ≤0.075
Oils/Fats/Greases	8	6	15	4	none defined
Mineral Oils	<10	<10	<10	<10	none defined

DRO	<10	<10	<10	<10	none defined

May-11

Parameter	SW1a (dis)	SW2a (dis)	SW2b (u/s)	SW2c (d/s)	Surface Water Regs SI No 272 of 2009
pH	7.4	6.7	6.7	7	4.5<pH<9.0
Conductivity	568	666	420	556	none defined
COD	44	24	92	58	none defined
BOD	8	<2	2	2	High status ≤2.2 Good status ≤2.6
Ammonia	0.69	0.54	0.09	0.24	High Status ≤0.04 Good ≤0.065
Suspended Solids	27	11	8	23	none defined
Total Phosphorous	0.19	0.16	1.42	0.42	High Status ≤0.045 Good ≤0.075
Oils/Fats/Greases	13	8	15	20	none defined
Mineral Oils	<10	<10	<10	<10	none defined
DRO	370	<10	840	<10	none defined

Sep-11

Parameter	SW1a (dis)	SW2a (dis)	SW2b (u/s)	SW2c (d/s)	Surface Water Regs SI No 272 of 2009
pH	7.4	7.1	6.3	6.4	4.5<pH<9.0
Conductivity	1399	1480	302	493	none defined
COD	104	51	135	145	none defined
BOD	43	8	<2	<2	High status ≤2.2 Good status ≤2.6
Ammonia	1.53	0.68	0.05	0.17	High Status ≤0.04 Good ≤0.065
Suspended Solids	19	13	6	7	none defined
Total Phosphorous	0.32	0.06	0.12	0.19	High Status ≤0.045 Good ≤0.075
Oils/Fats/Greases	10	10	14	23	none defined
Mineral Oils	<10	<10	<10	<10	none defined
DRO	<10	<10	<10	<10	none defined

Nov-11

Parameter	SW1a (dis)	SW2a (dis)	SW2b (u/s)	SW2c (d/s)	Surface Water Regs SI No 272 of 2009
pH	7.3	7	6.4	6.5	4.5<pH<9.0
Conductivity	516	994	198	255	none defined
COD	81	125	131	139	none defined
BOD	6	18	<2	<2	High status ≤2.2 Good status ≤2.6
Ammonia	0.42	1.11	0.08	0.13	High Status ≤0.04 Good ≤0.065

Suspended Solids	338	47	9	29	none defined
Total Phosphorous	0.18	0.22	0.24	0.17	High Status ≤0.045 Good ≤0.075
Oils/Fats/Greases	9	9	12	19	none defined
Mineral Oils	<10	<10	<10	<10	none defined
DRO	<10	30	40	<10	none defined

Jun-12

Parameter	SW1a (dis)	SW2a (dis)	SW2b (u/s)	SW2c (d/s)	Surface Water Regs SI No 272 of 2009
pH	7.1	6.6	6.6	6.5	4.5<pH<9.0
Conductivity	660	714	237	260	none defined
COD	73	71	51	390	none defined
BOD	20	25	<2	<2	High status ≤2.2 Good status ≤2.6
Ammonia	3.63	0.47	0.86	0.18	High Status ≤0.04 Good ≤0.065
Suspended Solids	15	9	13	9	none defined
Total Phosphorous	0.11	0.177	0.441	1.198	High Status ≤0.045 Good ≤0.075
Oils/Fats/Greases	<1	<1	<1	<1	none defined
Mineral Oils	<2.5	<2.5	<2.5	14.27	none defined

Sep-12

Parameter	SW1a (dis)	SW2a (dis)	SW2b (u/s)	SW2c (d/s)	Surface Water Regs SI No 272 of 2009
pH	7.2	7	5.8	6.1	4.5<pH<9.0
Conductivity	704	645	330	452	none defined
COD	22	12	170	96	none defined
BOD	3	<2	12	5	High status ≤2.2 Good status ≤2.6
Ammonia	0.07	0.9	0.9	0.61	High Status ≤0.04 Good ≤0.065
Suspended Solids	11	7	5	7	none defined
Total Phosphorous	0.036	0.411	0.172	2.637	High Status ≤0.045 Good ≤0.075
Oils/Fats/Greases	<1	<1	<1	<1	none defined
Mineral Oils	<2.5	15.57	<2.5	49.29	none defined

Nov-12

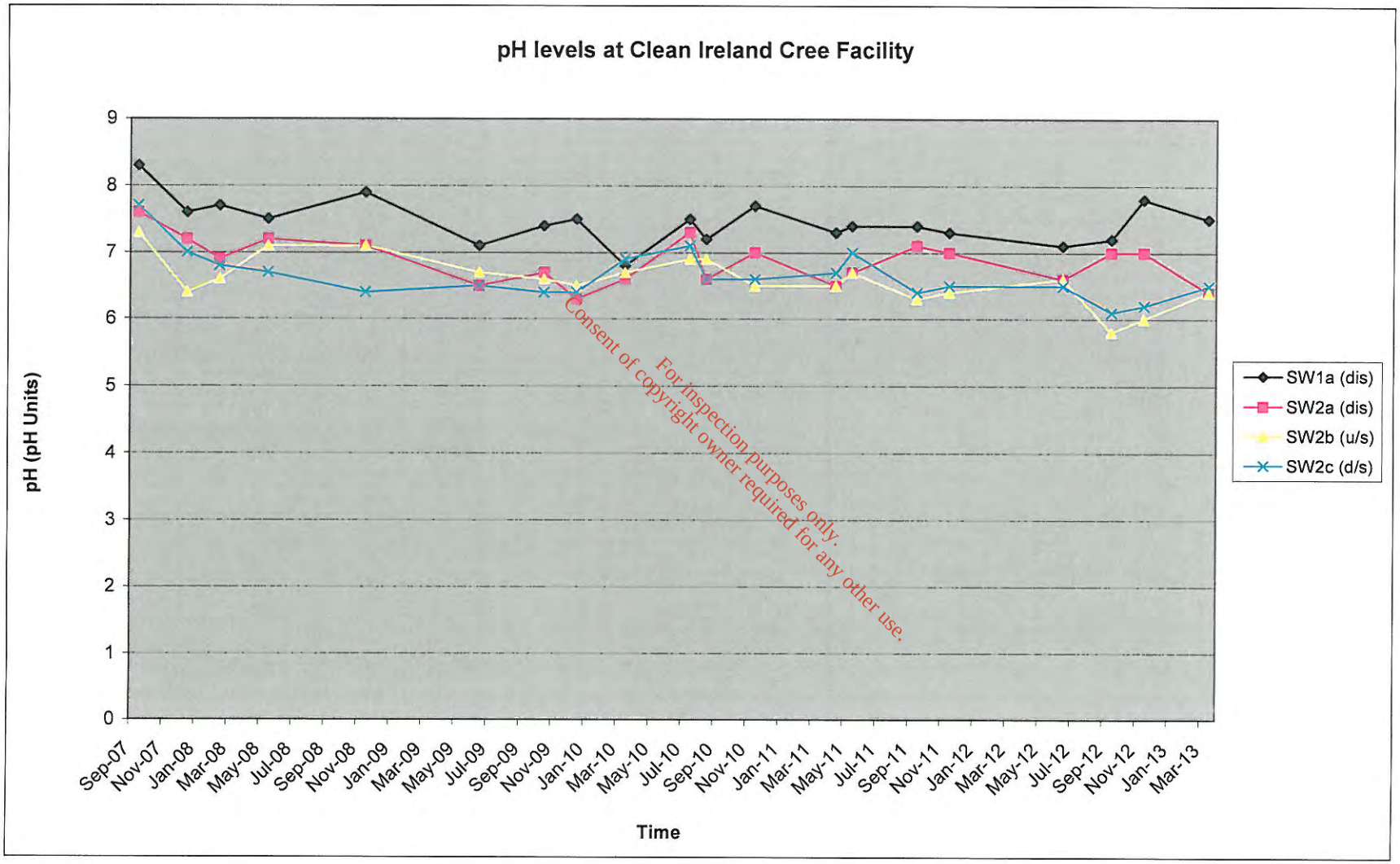
Parameter	SW1a (dis)	SW2a (dis)	SW2b (u/s)	SW2c (d/s)	Surface Water Regs SI No 272 of 2009
pH	7.8	7	6	6.2	4.5<pH<9.0

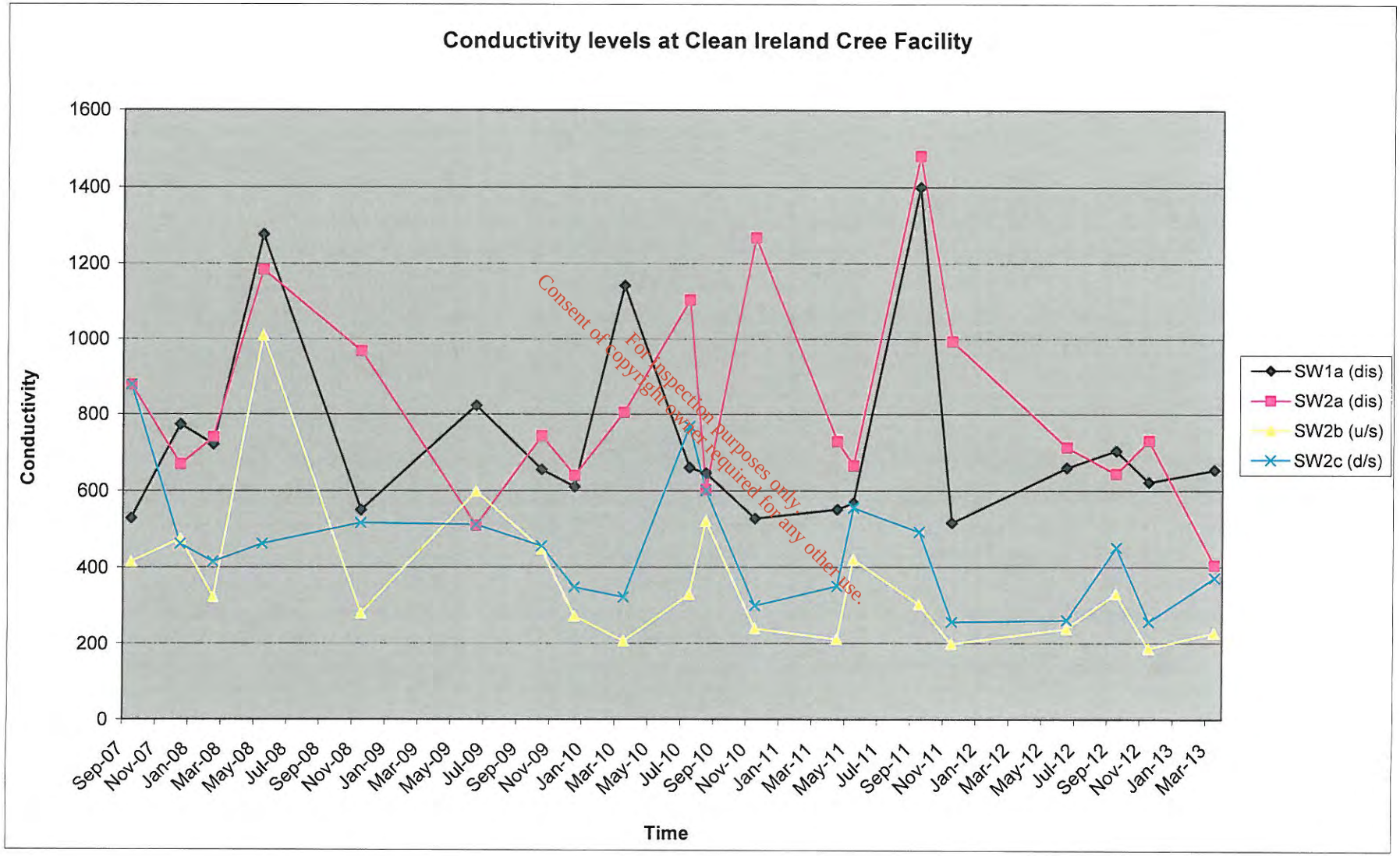
Conductivity	622	732	185.5	255	none defined
COD	18	66	179	139	none defined
BOD	<2	<2	<2	<2	High status ≤2.2 Good status ≤2.6
Ammonia	0.697	0.759	0.055	0.101	High Status ≤0.04 Good ≤0.065
Suspended Solids	11	15	3	7	none defined
Total Phosphorous	0.119	0.376	0.236	0.255	High Status ≤0.045 Good ≤0.075
Oils/Fats/Greases	<1	<1	<1	<1	none defined
Mineral Oils	<2.5	515.9	<2.5	<2.5	none defined

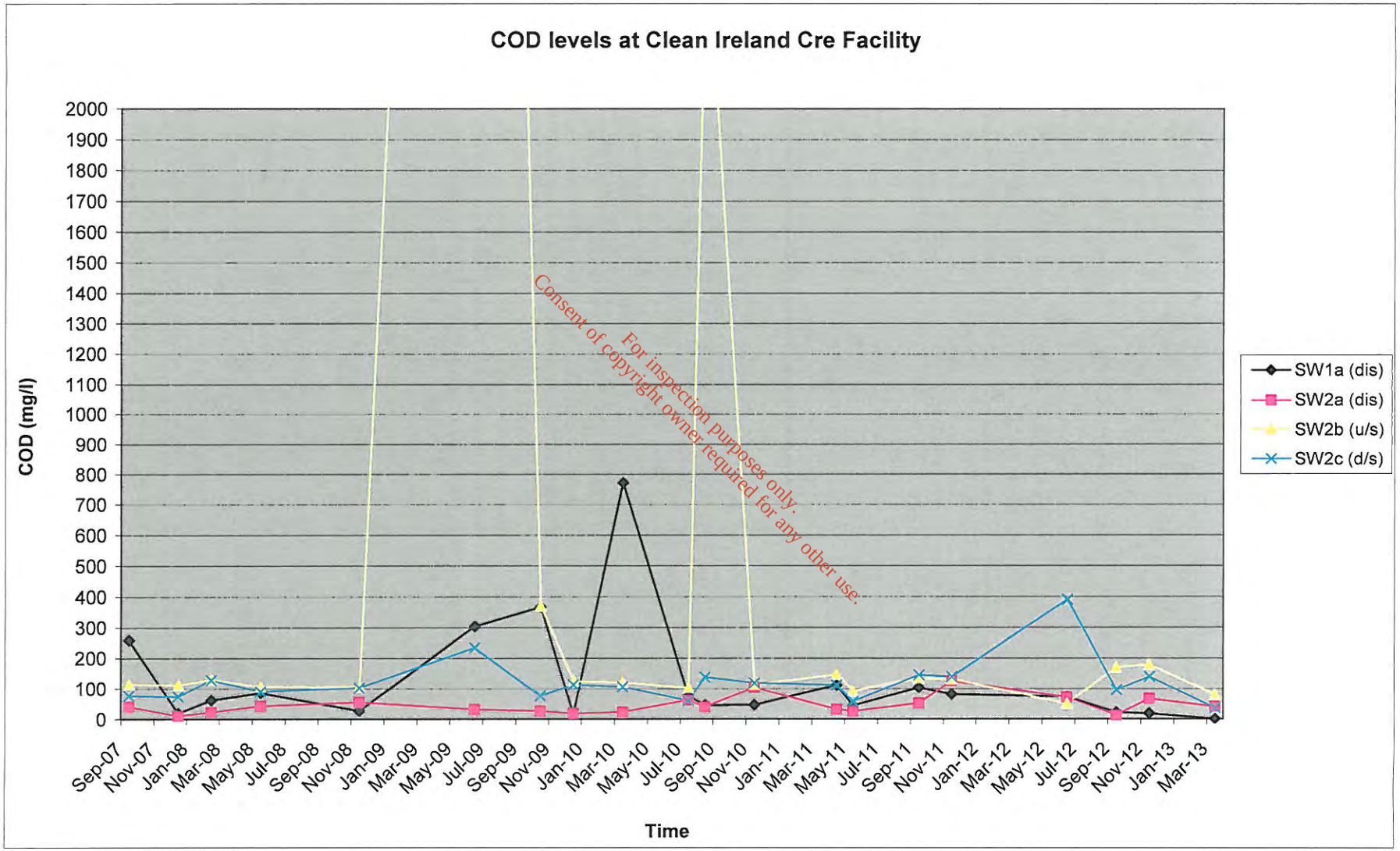
Mar-13

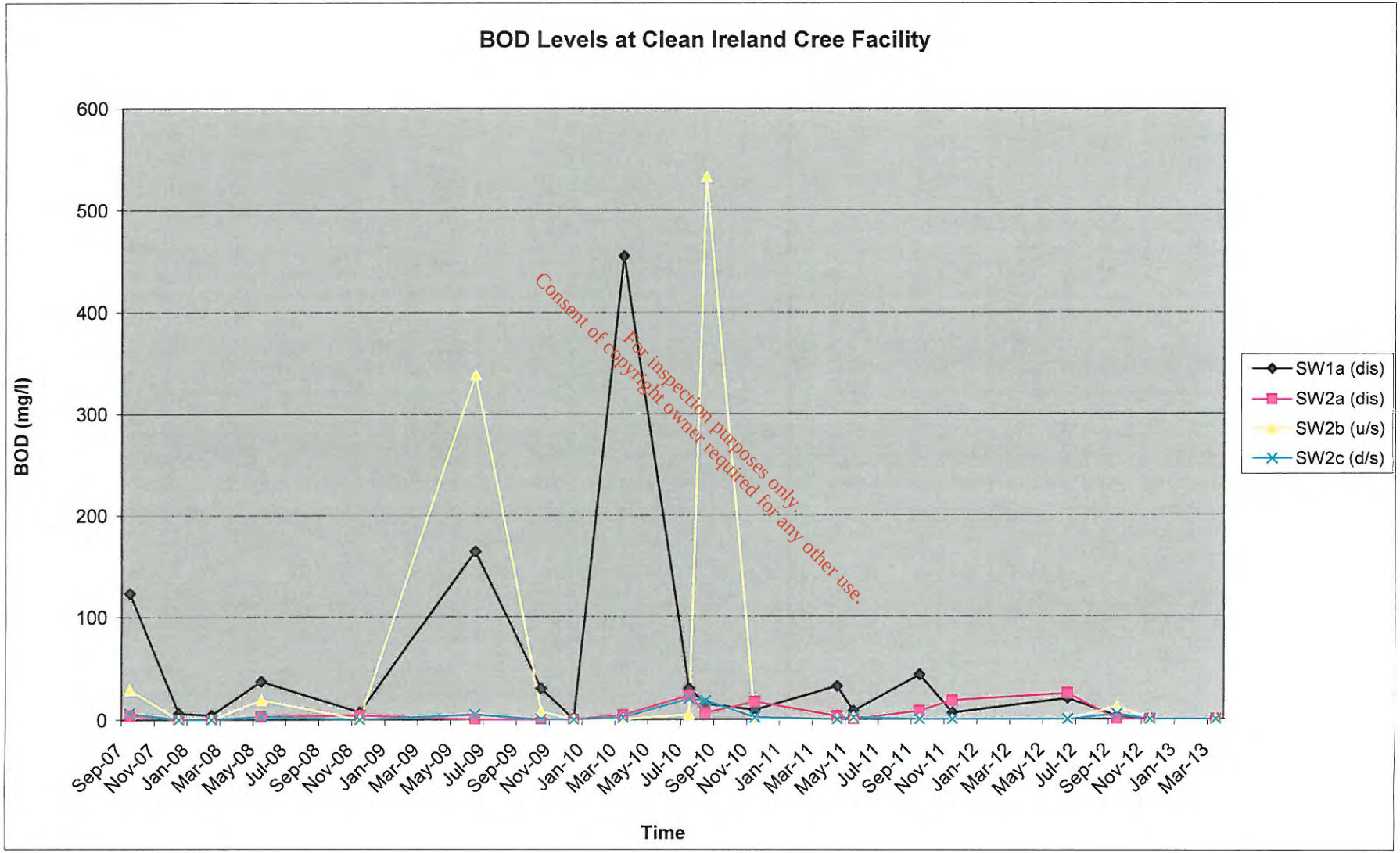
Parameter	SW1a (dis)	SW2a (dis)	SW2b (u/s)	SW2c (d/s)	Surface Water Regs SI No 272 of 2009
pH	7.5	6.4	6.4	6.5	4.5<pH<9.0
Conductivity	654	405	226	371	none defined
COD	<5	40	81	36	none defined
BOD	<2	<2	<2	<2	High status ≤2.2 Good status ≤2.6
Ammonia	3.69	0.677	0.096	0.562	High Status ≤0.04 Good ≤0.065
Suspended Solids	9	5	24	9	none defined
Total Phosphorous	0.18	0.65	0.245	0.175	High Status ≤0.045 Good ≤0.075
Oils/Fats/Greases	<1	<1	<1	<1	none defined
Mineral Oils	18.85	<2.5	<2.5	<2.5	none defined

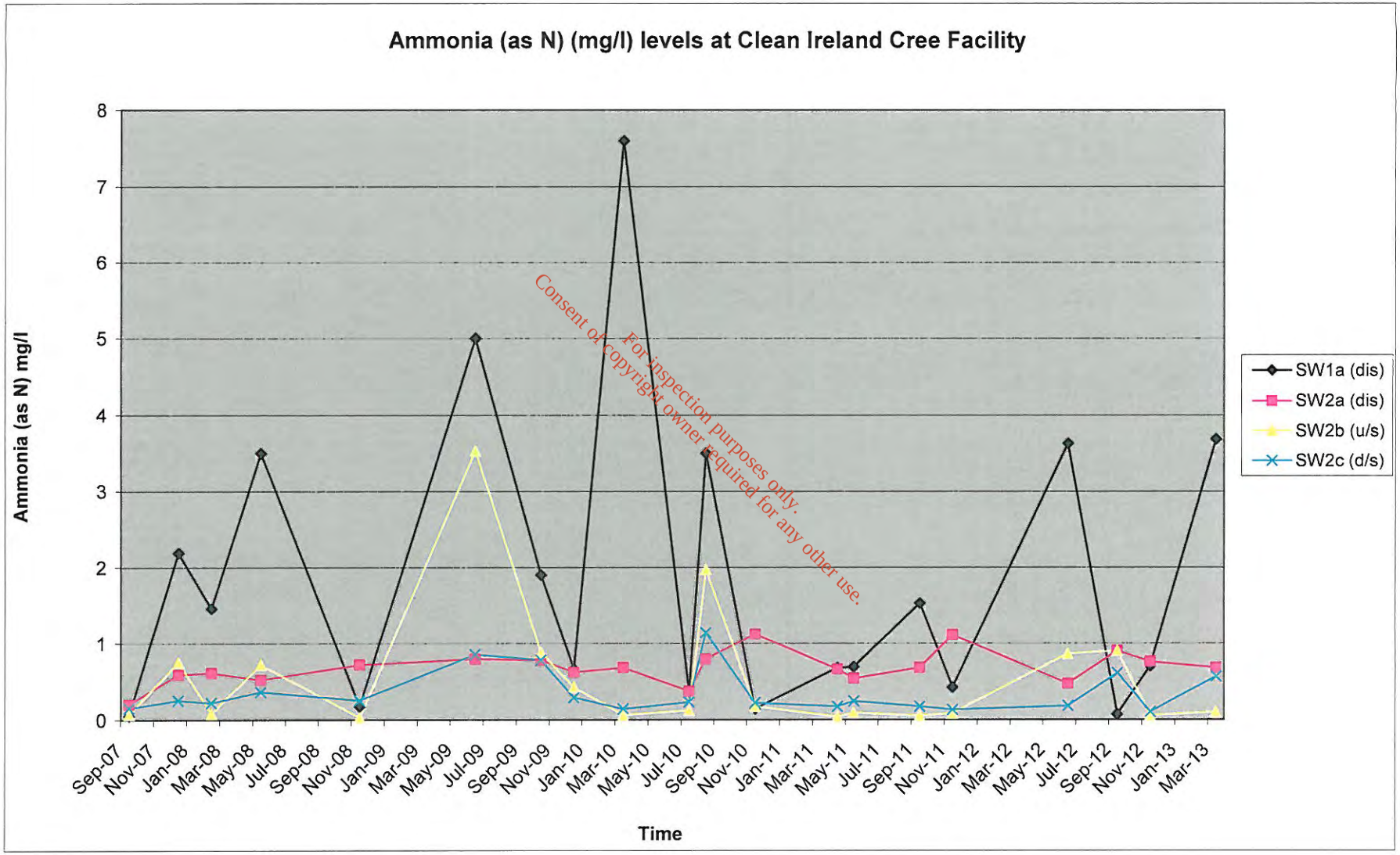
Trends are shown overleaf for each of the parameters.

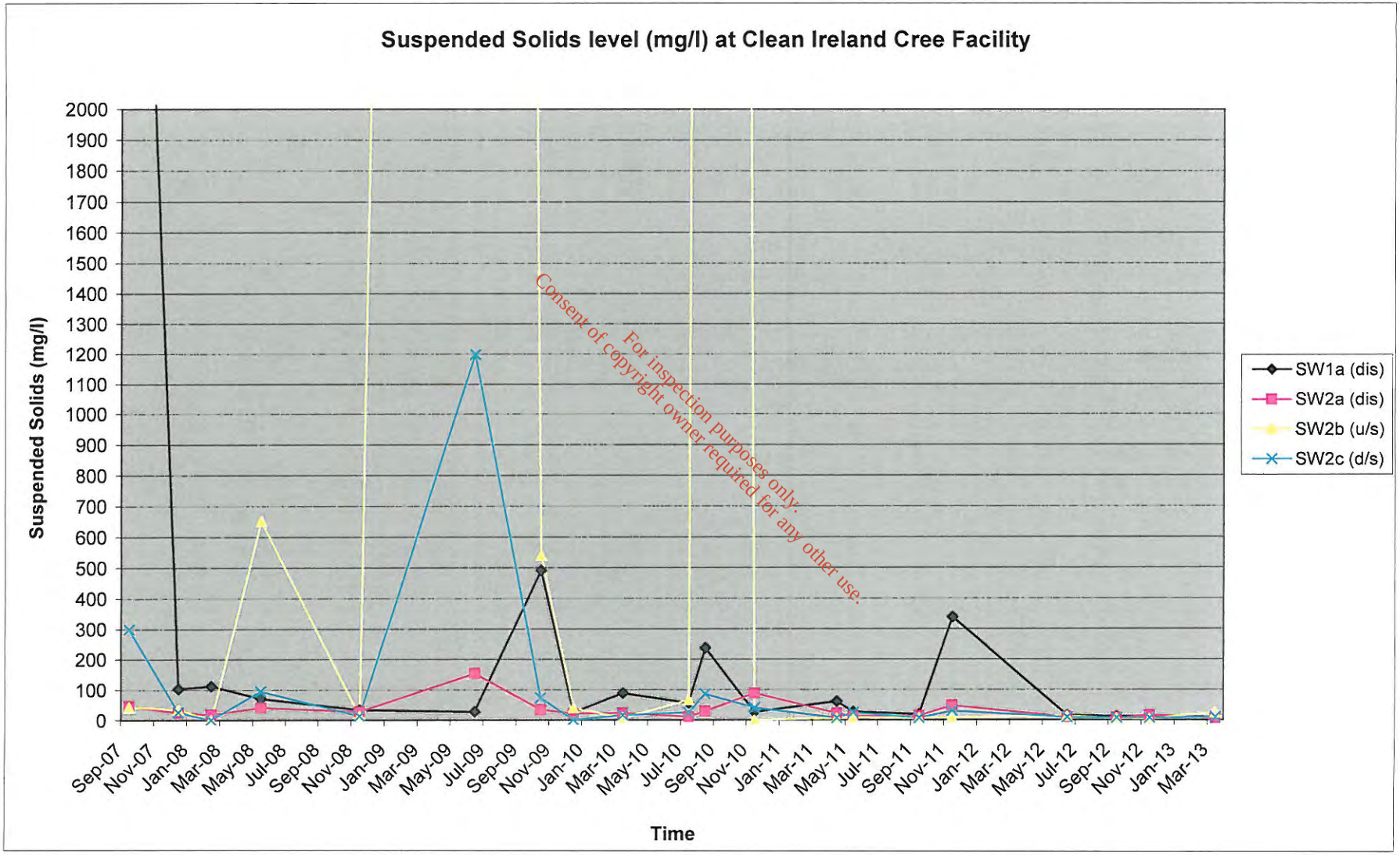


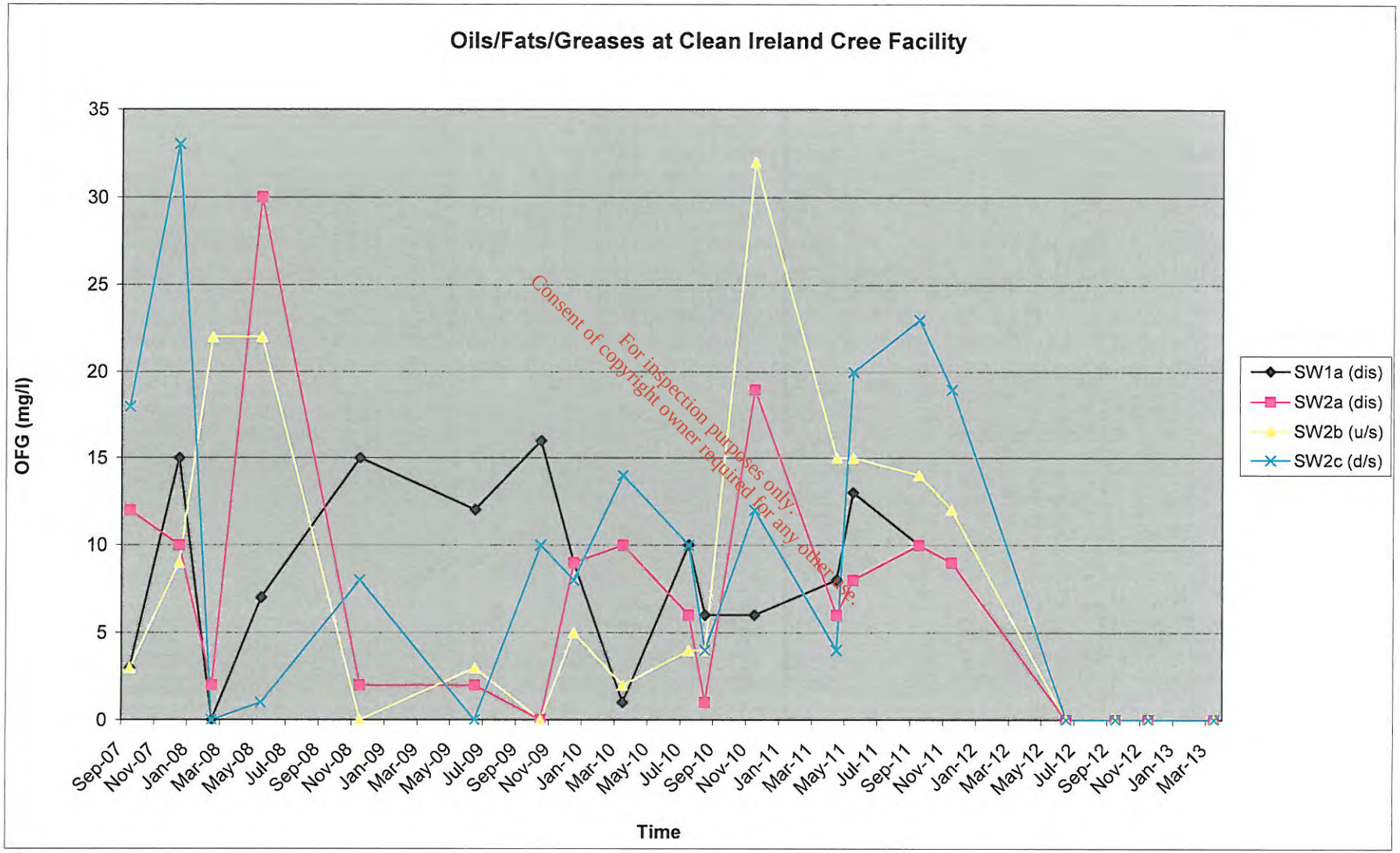


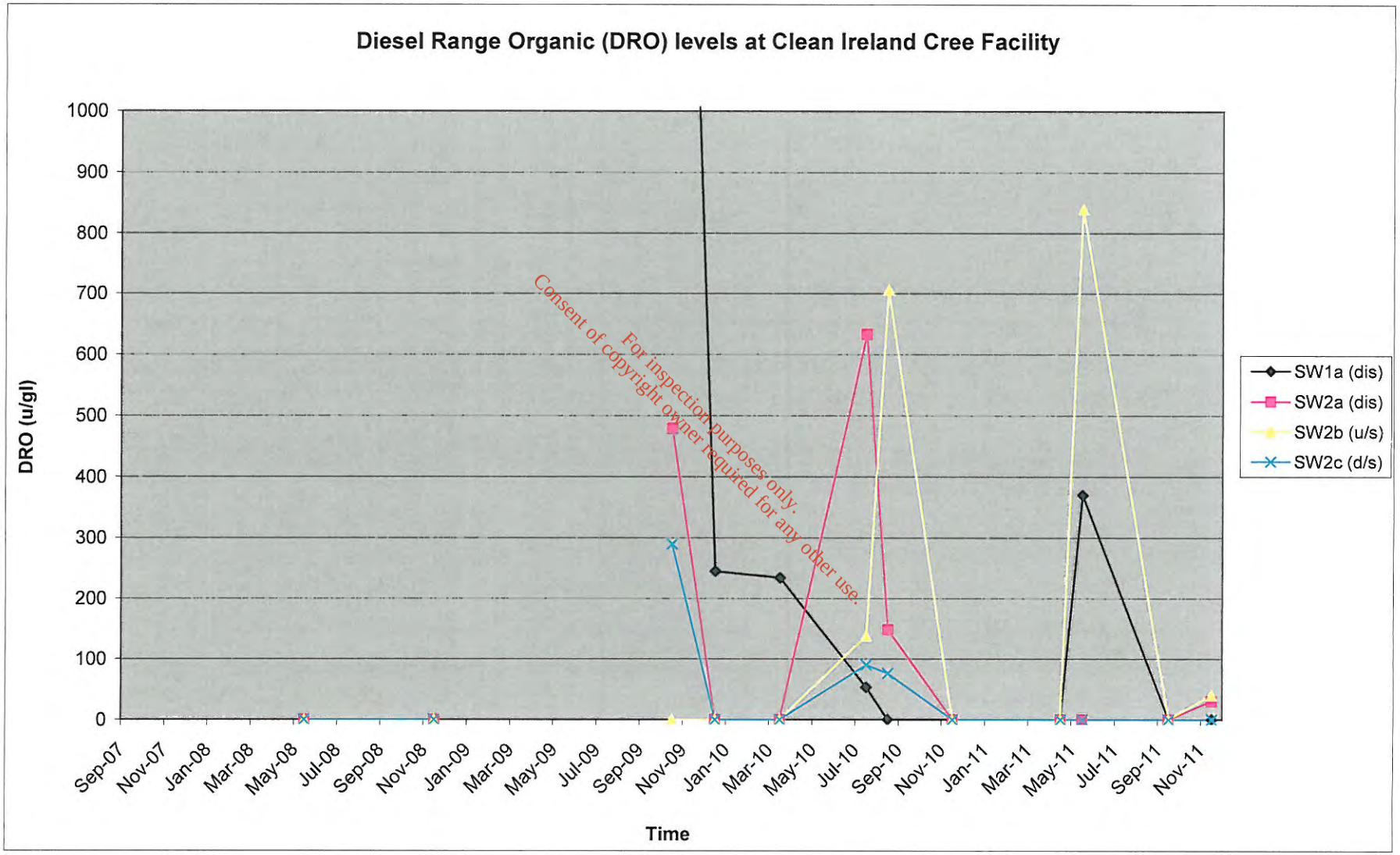












4. State the proposed height of the bio filter stack

The bio filter stack is 6.5m high.

5. Clarify whether the following elements of the licence review application require, are exempt of have been granted planned permission:

(i) CHP plant and stack height to 14m

Planning permission has been granted for the overall development which includes the CHP stack at an 8m height. The proposed change to the stack height from 8m to 14m following an air dispersion modelling exercise undertaken by ANUA, should constitute exempted development under the Planning and Development Regulations 2001 which states that:

(a) Development of the following descriptions, carried out by an industrial undertaker on land occupied and used by such undertaker for the carrying on, and for the purposes of, any industrial process, or on land used as a dock, harbour or quay for the purposes of any industrial undertaking—

(iii) the installation or erection by way of addition or replacement of plant or machinery, or structures of the nature of plant or machinery with the condition

The height of any plant or machinery, or any structure in the nature of plant or machinery, shall not exceed 15 metres above ground level or the height of the plant, machinery or structure replaced, whichever is the greater.

We are awaiting confirmation from Clare Co. Co. In the event that it is not exempt planning permission will be sought prior to planned development and it was discussed with the EPA that a condition would be included in the Waste License, as the CHP engine may not be procured by Clean Ireland Recycling with the next 5 years and any planning permission granted now would expire.

I enclose one original plus one copy of attachments and one CD-Rom of same. Trusting this is to the Agency's satisfaction.

Yours Sincerely,

Helen Behan 30th May 2013

Ms. Helen Behan
Environmental Consultant
Bord na Mona Plc
Main Street,
Newbridge, Co. Kildare.
045 439376

CLARE COUNTY COUNCIL PLANNING REPORT

File Ref.: 09-1270
Applicant: Clean Ireland Refuse & Recycling Ltd.
Development: Permission for development which will consist of (A) Permission for extensions (2014m2) to existing processing buildings (3070m2) previously granted Planning Ref: 04/2710, (B) Permission for biostabilisation building, (C) Permission for glass bunker storage area and (D) permission for end of life vehicles workshop area including ancillary works. An Environmental Impact Statement accompanies this application and a Waste Licence application (Ref: W0253-01) has been made to the Environmental Protection Agency.
Location: Ballynagun West, Cree
Due Date: 19/02/2010

The Site The subject site of an area of 2.95ha is located approximately 1.5km southwest of Creegh Village. The site at present contains the existing Clean Ireland facility consisting of processing sheds, office and ancillary buildings. The site also extends across the road to the north where there is currently a parking area. There are existing dwelling houses to the west (75m) and across the road to the northeast of the site.
The site notice was displayed on date of inspection, 25/01/2010, in accordance with the 2006 Planning and Development Regulations as amended.

Proposal
Permission is sought for the following:

(A) Permission for extensions (2014m2) to existing processing buildings (3070m2) previously granted Planning Ref: 04/2710. This extension extends to the south of the main processing building and the ridge height of same is almost 3m higher than the existing structure.
(B) Permission for biostabilisation building. This building provides for a Municipal Solid Waste (MSW) processing area, a biostabilisation plant area and a bio filter area. This is to be located to the south of the site with a total area of 5,678sqm and a maximum height of 10.7m. This building will process biodegradable materials from residential and commercial waste into soil amendment products (compost).
(C) Permission for glass bunker storage area. This is to be located on the northern site with an area of 340sqm and a height of almost 5m. The glass bunker on the site at present is to be removed.
(D) Permission for end of life vehicles workshop area. This is to be located to the west of the main site (1-3m from site boundary) and is to have a floor area of 217sqm and a height of 8.8m.
(E) Ancillary site works. These include fuel storage area, wheel and truck wash area, skip storage area, compost storage area, CHP stack and roof water retainer.

An Environmental Impact Statement has been submitted with the application, and applicants have made an application for a waste licence to the Environmental Protection Agency.
It is stated that the facility currently has an annual tonnage intake capped at 21,000 tonnes for waste handling and at 5,000 tonnes for the annual disposal fraction to landfill. The current proposal would allow the facility to increase the tonnes per annum from 21,000 tonnes to 64,000 tonnes.
The site currently obtains a water supply from the Drumellihy-Cree GWS and an on-site bored well. Surface water is to be disposed to existing watercourses and wastewater is disposed to an existing treatment system and percolation area.

Policy
County Development Plan
CDP 7
It is the policy of the Planning Authority to support the provision of waste management facilities such as bring bank sites and waste transfer sites and to this end the Planning Authority will require all developments to take account of the provisions of the waste management plan.

West Clare Local Area Plan 2009-2015

The subject site is located within the zoned cluster of Ballynagun where the following applies:

Other Settlement Land

The site is located in land zoned **Other Settlement Land**, the objective of which is to conserve and enhance the quality and character of the area, to protect residential amenity and allow for development appropriate to the sustainable growth of the settlement.

Policy INF S9 Implementation of Regional Waste Plan Objectives

It is the policy of the Council to implement the Regional Waste management Plan and any future amendments/revisions.

Policy INF S10 Landfill or Waste Transfer Stations

Development proposals for landfill sites or waste transfer stations will be considered where it can clearly be demonstrated that:

Environmental, geological, landscape and ecological impacts are acceptable under the terms of an environmental impact assessment which may be required; and

There are no unacceptable effects on the amenities of existing residents or transportation links in the area.

Policy E2 – Employment Location

Proposals for employment-generating development will be encouraged to locate within settlements where service infrastructure, amenities and human resources are more readily available.

Policy E3 – Employment Related Development

Proposals for new employment generating development or extensions to existing employment-generating development will be favourably considered where it can be clearly demonstrated that:

- They are of a scale, in terms of number of employees and site and building size, suitable for the location;
- They are appropriate to the respective area in terms of size and type of employment development to be provided
- They would not result in adverse transport effects
- They would have no significant adverse effects on the surrounding area or on the amenity of adjacent and nearby occupiers
- They would not result in the loss of actively managed agricultural land
- The proposed development is not for a type of use for which land is allocated elsewhere in the Plan area and there is no land reasonably available for development in such an area.

Replacement Waste Management Plan for the Limerick / Clare / Kerry Region 2006-2011,

This document outlines that Waste prevention and minimisation is the priority for the region, with a role for Local Authorities in promoting and developing the reuse and recycling of household, community, commercial and industrial waste. The plan recognises the role of the private sector in developing waste facilities and supports the provision of additional local waste transfer stations or material recovery where these can be shown to be consistent with the overall objectives of the Plan.

The existing Clean Ireland facility is not identified on the map of this document. The Lisdeen facility (Reg. 170-1) is identified as a waste transfer facility and recycling facility (no. 3 and 58, Map no. 9). There are no other waste facilities identified for the West Clare area with the nearest being the Central Facility at Inagh or the Ennis recycling facility.

Site History

09-306 – Permission granted to Clean Ireland Ltd for retention permission for (A) RETENTION permission for extensions to existing processing buildings previously granted Planning Ref: 04/2710, (B) Revision of boundaries (c0.35ha) and (C) RETENTION permission for ESB substation including ancillary works, subject to 3 no. conditions. Constructed and development contributions paid.

08-846 – Permission granted to for (A) permission for material change of use of a dwelling house to administration offices and (B) revision of the existing boundary to include the dwelling and associated land within the facility, subject to 3 no. conditions. Constructed/developed and dev contributions paid.

04-2710 - (a) retention permission for an existing extension of the waste processing building; for a bunded fuel storage shed; a car park with capacity for 15 cars; extension of the site boundary (b) permission for further extension of the waste processing building, a weighbridge, an office building and a green area to the south of the facility. Granted subject to 23 no. conditions. Constructed/developed and dev contributions paid.

99-1374 – Permission granted to Michael O Donoghue to construct a commercial building, granted subject to 15 no. conditions.

Pre-Planning

PPI 08-151 – Notes attached.

Technical Reports

Roads Dept

Applicant is requested to submit Autotrack simulations or simulations of a similar nature illustrating how trucks can manoeuvre safely within the confines of the site.
The local road (L6108) is in good condition and does not require any additional works to be carried out in order to cater for an increase in traffic as a result of the proposal.

Fire Dept

Outlines requirements in relation to the building regulations.
Notes that the full detail of the application will be dealt with at the Building Control Stage and that a Fire Safety Certificate will be required for the proposal.

Environment Section Received 15-02-2010 - Contents noted.

Submissions from Prescribed Bodies

An Taisce

That there is compliance for rural development within the development plan in terms of design, landscape designation and other relevant criteria.
Hours of operation appear excessive.
Public safety and road safety.
Proposal will result in a three-fold increase in volume and a correlating increase in truck movements.
There is no indication whether the local or regional road system is capable of such movements.
There is 24 house/day acceptable level indicated. This should be assessed in terms of residential amenity.
Proposal would result in greater noise pollution at this location. The impact of same on adjoining properties needs to be assessed.
Air pollution – should be limited so as not to have health and safety implications.

The above submission has been considered in assessing this application.

3rd Party Observations

None recieved.

Representations

None.

Environmental Impact Assessment

An EIS has been submitted with the application. I have read the contents of same and consider that same is generally acceptable. The issue of alternatives has been addressed in Section 1.4 of the EIS. In my opinion, the EIS is considered to be in compliant with Article 94 of the Planning and Development Regulations, 2001-2007, as amended.

Appropriate Assessment Screening

The proposed development is not located in close proximity to any Natura 2000 site. However there are 3 no. Natura 2000 sites in the general area:

- Tullaher Lough & Bog, SAC and SPA, Site Code 70
- Carrowmore Dunes, SAC, Site Code 2250
- Carrowmore Point to Spanish Point & Islands and Mid-Clare Coast, SAC, Site Code 1021

Notably, indirect discharge to the Creegh River and Skivileen River and further down stream to the sea off Carrowmore Dunes is a consideration. The qualifying Interests for Carrowmore Dunes are Fixed coastal dunes with herbaceous vegetation (grey dunes), Shifting dunes along the shoreline with Ammophila arenaria (white dunes), Embryonic shifting dunes, Reefs and Narrow Mouthed Whorl Snail (Vertigo angustior).

The Local Authority is obliged under EU (Natural Habitats) Regulations 1997 when duly considering an application for planning permission, or the Board when duly considering an appeal on an application for planning permission, in respect of a proposed development that is not directly connected with or necessary to the management of, a European site but likely to have a significant effect thereon either individually or in combination with other developments, shall ensure that an appropriate assessment of the implications for the site in view of the site's conservation objectives is undertaken.

Part V

n/a

Assessment

Existing and Proposed Use

Details of the existing use are outlined in Section 2.2.2 of the EIS. Currently the company operates a waste collection service throughout the Mid-West region and has a tonnage intake capped at 21,000 tonnes and at 5,000 tonnes for disposal. The existing facility has a waste permit from Clare County Council (002/07/WPT/CL). Operation hours are from 7.30am to 7.30pm Monday to Friday and 7.30am to 1pm on Saturday. 35 people are employed at the site with another 12 people employed in the Ennis office. Waste is collected (blue bins – dry recyclables, green bins – residual waste) on alternative weeks before being sorted, processed and seperated in to various factions. The plant currently provides for the processing of dry recyclables, wet waste, dropdown skips, timber shredding, and construction and demolition waste.

The proposal involves a substantial extension to the existing waste processing facility, with a total floor area of over 8,000 sqm. The extension to the main processing building essentially covers over the existing shredding area and C&D storage area. The proposal also provides for an end of life vehicle unit, truck and wheel wash, a Combined Heat Power (CHP) engine and skip storage. However the main aspect of the application is the biostabilisation building to the rear of the site. This will convert 15,000 tonnes of biodegradable waste materials (food, wood, non-recyclable paper) from residential and commercial waste into compost materials. This involves the pre-treatment of bio-waste, which is then loaded into fermentation chambers for 28 days. Anaerobic digestion is then initiated and biomass is heated to produce biogas. This biogas is then drawn off the tunnels and stored prior to use as fuel in a CHP gas engine. 50% of the load is transferred into incoming stock and 50% into the composting tunnel, with each particle getting a retention time of 56 days. Following this in-vessel composting of the bio-waste takes place in aerated tunnels for 14-28 days. Following composting the material is screened and transferred into a pasteurisation tunnel and heated. Following this, the material then matures for 4-7 days, before being transferred to the compost storage area to the rear of the site.

The proposal would involve a substantial intensification of use on this site with the proposed opening hours from 7am to 12am (Monday to Saturday) and 8am to 6pm (Sunday). House of waste acceptable will be from 8am to 8pm (Monday to Saturday) and 8am to 6pm (Sunday). It is stated that construction hours will be from 9am to 6pm (Monday to Friday) and 9am to 1pm (Saturday).

Principle of Development

The site is located within the designated cluster of Ballynagun, which was zoned as Other Settlement Land (OSL) in the West Clare LAP 2009. The objective of the OSL zoning is to conserve and enhance the quality and character of the area, to protect residential amenity and allow for development appropriate to the sustainable growth of the settlement. The proposal is to provide for further expansion to the existing facility and to increase the tonnes processed per annum from 21,000 tonnes to 64,000 tonnes. Policy CDP 7 of the County Development Plan supports the provision of waste transfer sites. In addition it is considered that the proposal is in keeping with policies in relation to waste management (INF S9 and INF S10) and employment (E2 and E3) of the West Clare Plan. As such and having regard to the established use on site, the zoning of the site and the policies of the West Clare LAP and CDP, the principle of development would be acceptable subject to satisfying all necessary environmental/site suitability issues.

Alternatives Considered

Section 1.4 of the EIS addresses the issue of alternatives. It is stated that no alternatives have been considered with regard to the current site as the existing operations are in keeping with the Waste Management plans objectives. However it is stated that alternatives were considered for the processes to be undertaken on the site with regard to the biological treatment for source seperated bio-waste and mixed-waste. These included vessel composting and anaerobic digestion. It was considered that a combination of dry fermentation tunnel composting technologies would be more appropriate and thus chose a biostabilisation plant for construction. Having regard to the existing use and operations currently undertaken on this site I am satisfied that the proposed extension is in keeping with same and would not require the relocation to an alternative site.

Residential Amenities

Notwithstanding the designated zoning cluster of Ballynagun, it is considered that the subject site is essentially located within a rural area, as there are no main services at this location. There is an existing dwelling house across the road from the site to the north east and also a dwelling house to the west (80m away). Although there are a number of dwellings further along the local road (L-6108) it is considered that the main impact will be on the two nearby dwellings. It is considered that the issue of residential amenity can be divided up in to the following headings:

Odours

On date of inspection there was no notable odours emanating from the subject site. It is considered that there would be the possibility of odours as a result of the new aspect of the development namely the biostabilisation building and associated composting and bio-filters. I note that section 2.3.2.1.3 (p. 40) of the EIS states that there will be between 1 and 4 air changes per hour. I note also of the EIS which states that the full enclosure of the facility with a single discharge point allows for maximum control of odour from the facility. It is further stated that "the combination of enclosure, optimised compost aeration, effective air stream capture and treatment will result in odour emissions from the facility that will not cause nuisance in the vicinity of the facility". This point is further emphasised in Section 3.6.3 of the EIS (p. 172) where it is stated that an odour management plan will be put in place for the facility. In the event of planning permission it is considered that details of same shall be conditioned to be agreed with the Planning Authority.

With regard to bio-aerosols it is stated that the impact on humans is low. A number of pathogens may develop during the composting process and it is stated that one of which, the fungus *Aspergillus Fumigatus*, may be responsible for allergies and respiratory infections. It is stated that all aspects of the composting process that may produce bio-aerosols are carried out within the dedicated building, with the air that is produced captured and treated to reduce odours, including any bio-aerosols.

There are some concerns in relation to bio-aerosols as a result of the biostabilisation building. It is noted that the EIS states that bio aerosol emissions from the composting process will not 'significantly' increase the back ground bio aerosol levels. This may mean that there are 'some' bio aerosol levels. I consider that there should be certainty in relation to odour emissions and practical mitigation measures should be described in considerable detail.

Noise

Details of noise sampling locations are outlined in drawing no. C(IRL) WL06 Rev 2 and Table 3.7.1. It is stated that the existing facility is monitored biannually under the terms of the existing waste permit on the site, which limits noise at 55dB(A) during the daytime and 45dB(A) at night time. The EPA Guidelines define day time as 0800hrs to 2200hrs and night time as 2200hrs to 0800hrs.

It is noted that the proposed opening hours are to be extended significantly from those at present with the proposed opening hours from 7am to 12am (Monday to Saturday) and 8am to 6pm (Sunday). Hours accepting waste will be from 8am to 8pm (Monday to Saturday) and 8am to 6pm (Sunday). The current facility operates from 7.30am to 7.30pm, Monday to Friday, and 7.30am to 1pm on Saturday. As such it is considered that there will be a significant increase in noise levels at night time as the facility will be operating an extra 4 ½ hours per day, Monday to Saturday. The extension of hours is to allow for two work shifts to take place. It is stated that the trommel and shredder will not be operating after 7pm. The site is also to be operated on a 24 hour basis. Full mitigation measures are outlined on page 198-9.

I note in particular the night time noise results as detailed in Table 3.7.5 (p. 185), which indicate that the noise levels were exceeded on the 6th March 2008. Considering the additional hours proposed I would have some concerns in relation to the noise impacts of the proposal on adjoining properties.

Furthermore I note that the glass bunkers are to be located to the north of the site, located approximately 60m from the existing dwelling house. It is considered that there may be some negative impact on the amenities of this property in terms of noise. I would also have concerns in relation to the possible noise impacts from the End of life vehicles workshop. Further details shall be sought in relation to same.

Dust

Details of baseline air quality data are outlined in Section 3.6.2 and the locations of dust monitoring points are also indicated. The results indicate that the dust levels are generally in keeping with the limit value though some exceedences have occurred to the south of the site due to the mounding/earth works. Potential impacts are stated to arise from Nitrogen Dioxide (NO_2) and Sulphur Dioxide (SO_2), aswell as volatile organic compounds (BTEX), from on-site vehicles. The proposed extension to the existing facility would result in the containment of the timber shredding and C&D processing within an enclosed space and as such the potential for dust deposition off-site is reduced significantly. There may be some impact during the construction phase though I consider that this would be minor.

In relation to the above headings, I also note that under section 257 of the Planning and Development Act 2000, a planning authority, where a waste licence is required from the EPA for an activity, may refuse permission on environmental grounds but may not impose conditions for the purpose of controlling emissions.

Traffic and Road Safety

According to Section 3.8 of the EIS the site at present is accessed by the local road serving the site to the east and west (employees) with waste vehicles accessing the site via the eastern direction only. I note that the latter route was part of a condition of Pl. Ref 04-2710. The sight distances from both access points into the site are generally considered acceptable. The proposal does not involve the creation of new site entrances, with the existing being utilised. As part of the EIS a traffic survey was carried out on the junction of the local road and the R483 and on the junction of the R483 and the R484. Sight distances from the junction of the L6108 and the R483 are generally acceptable and the local road from this junction to the subject site is wide in parts allowing for two cars to pass. The proposal would

result in the facility processing over 64,000 tonnes of waste per annum. Currently 21,000 tonnes are processed at the facility. As such there will be a resulting increase in traffic movements. Table 3.8.6 of the EIS outlines the difference between the existing and proposed use. Currently there are 4137 traffic movements per annum from and to the site. This would increase to 11312 movements (222 per week) into and out of the site as a result of the proposal due to a significant increase in C&D waste, end of life vehicles, brown bin waste and municipal solid waste. With regard to brown bin waste I note that it is proposed to use a 14 tonne truck at an alternative location to Cree, which will collect waste from other trucks reducing somewhat the traffic movements in to the site.

As such there would be a significant amount of traffic movements generated by the proposal. This aspect of the application was referred to the Road Design Section (report on file) who are satisfied that the existing road network is capable of catering for the proposed development. The proposal would result in a significant increase of traffic movements to and from the site when operational (32 trucks per day). However from my knowledge of the area the road network is not very busy and I consider that the increase would not result in a traffic hazard.

With regard to employee traffic it is stated that there are currently 30 people employed on this site resulting in 50-60 traffic movements per day. Staff numbers are to increase by 2 as a result of the proposal resulting in an additional 4 movements.

The facility is not to be used by private vehicles which would lead to further movements at this location. A condition shall be attached prohibiting use of the facility by members of the public in the event that permission were to be granted in the interests of clarity.

With regard to internal access, the Road Design report has requested further details to be submitted with regard to autotrack analysis for the site.

Road cleaning or the prevention of mud leaving the site on during and operation is considered to be an important issue. I note a truck wash facility is proposed as part of the proposal, presumably for operational trucks. In any event it is considered that this issue can be adequately covered by the imposition of suitable conditions.

Some of the mitigation measure proposed on grounds of traffic safety include:

- Trucks not to pass through Kilmihil outside peak hours
- National routes to be used as opposed to local roads
- The use of a brown bin depot (no further details of this depot have been included)

Soils and Geology

It is stated in Section 3.2.3.3 that soil type in the area is of Gleys. Details of soil samples undertaken on the site are outlined in Table 3.3.1 and indicate that there are no levels within the samples above the contaminated limits. The subsoil is described as glacial till, with permeability ranging from moderate to low. Details of a trail hole investigation are outlined on pg. 109, and indicates a depth of 1.9m and a T value of 40. It is stated that the site is not identified as a geological heritage site and as such there will be no impact on same.

Potential impacts on soils are stated to include from discharges from leachate generated by waste material, and hydrocarbons. Details of mitigation measures are outlined in Section 3.3.5 and include a leachate collection system, oil interceptors, spillage kits and the provision of bunded areas. Storage areas are to be provided for baled dry waste and refuse derived fuel (RFD).

Visual Amenity

The proposed development comprises over 8,000sqm of new build. The majority of this new build is to be located to the rear of the existing processing facility. It is noted that the proposed extension to the existing facility is to be higher than the existing structure. Drawing no. PND 166/9/REV B indicates that the extension would have a ridge height of 48.91m, which is higher than the existing structure at

45.91m. The increase in height is to allow for machinery to operate within the building where it is stated that a minimum height of 9.7m is required. The biostabilisation building will have a height of 10.7m, and considering its location to the rear of the site is not considered to impact substantially on the amenities of the area. Earthen berms are proposed around the northern and western boundary (northern part of the site), which it is considered would help to screen this aspect of the development.

Section 3.10 of the EIS addresses the issues of visual amenity and details a number of points within a 2km radius of the site. It is considered that the main visual impact would be localised from the eastern approach to the site along the L-6108. The existing structures are visible from the R484 to the north, however given the distance away (900m) I do not consider that the proposal would be overly obtrusive. I note that under condition no. 2 of Pl. Ref 04-2710, landscaping is required along the boundaries of the site. On inspection it is noted that this landscaping has been undertaken and when mature may help to reduce the visual impact of the site. I also note that the subject lands have no particular designation or protection, the views over the site are not protected and the roads in the vicinity are not classed as Scenic routes. Mitigation measures are outlined in Section 3.10.5. In the event of planning permission the colouring scheme shall be conditioned to match the existing structure and also a finalized landscaping scheme prepared for agreement. Subject to same it is considered that the proposal would be acceptable on grounds of visual amenity.

Flora & Fauna

Section 3.2.2 outlines that there are no designated sites (SACs, SPAs, NHAs or pNHAs) within 2km of the site. It is stated that the land in the immediate area is of poor agricultural quality and suitable for forestry. According to the EIS in Section 3.2.4, there are three SACs[1], one no. NHA[2], four no. pNHA's[3] and one SPA[4] within 10km of the site. Hedgerows, earth bank and drainage ditches surround the subject site. There is an existing drain to the southeast of the site which runs along the southern boundary in a westerly direction and into the Creegh River, which floes into Doughmore Bay and SAC. There is also a drainage ditch along the eastern boundary in the northern half of the site. It is stated that the proposal would not have any impact on the designated sites.

According to the EIS there was no fauna directly observed during the site survey. With regard to avifauna it is stated that there are measures in place to prevent scavenging on the site, namely the enclosure of wet waste storage and processing of same within a time period. On date of inspection I did not note any bird species on this site, however the EIS outlines a number of species which may be visitors to the site. I note that no details have been submitted with regard to vermin control however should the materials be stored in an enclosed space then this *may* not be an issue.

Surface Water

The site is located within the River Creegh sub-catchment. It is stated in Section 3.4.1 of the EIS that there is no direct discharge into a stream from the facility, however surface water drainage occurs to the north and south of the site via separators and is currently permitted to discharge 150m³/day to surface waters under the permit and discharge licence. Baseline water quality monitoring was conducted on the existing river at Creegh Bridge and Mountrivers Bridge and it is noted that it has a Q rating of 3-4, indicating slightly polluted conditions. It is stated that the quality of the discharge from the south of the site is of better quality than that to the north, which may be due to the lower volume of surface water at the southern end.

Potential impacts to surface waters are outlined in Section 3.4.4 and include leachate generation, washing facilities, baling of wetwaste, raw materials, biostabilisation plant and skip storage. It is stated that currently there are two soil/silt interceptors, a bunded area and phasing programme of hardstanding

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[1] Tullaher Lough & Bog, Carrowmore Dunes & Carrowmore Point to Spanish Point & Islands
[2] Cragnashingaun Bogs
[3] Tullaher Lough & Bog, White Strand Carrowmore Marsh, Carrowmore Point to Spanish Point & Islands and Mid-Clare Coast
[4] Tullaher Lough & Bog

across the site. Further mitigation measures include the management and minimisation of the volume of leachate generated, a surface water management plan. Full details of same are outlined in section 3.4.5 of the EIS.

Hydrogeology

The subject site is located within a locally important aquifer of High Vulnerability. An assessment of ground water quality has been undertaken on this site (Table 3.5.2), which generally indicates a clean water quality, though some coliforms were encountered in 2005 but not in 2008. The water supply in the area is by wells or the Dromellihy/Cree Group Scheme. It is stated that the existing facility is serviced by an on-site well or the group scheme (3.3.2.1), and that abstraction rates will be minimal similar to that of a small farm or domestic usage (3.5.4). Potential impacts on groundwater is stated to include from the existing treatment system, discharges from leachate generated by waste material, hydrocarbons, and waste arising from End of Life vehicles. It is stated that the existing hard surfaced areas will provide some protection. Other mitigation measures include a leachate collection system, oil interceptors, spillage kits and the provision of bunded areas. In general on the basis of the details contained in the EIS it is considered that the issue of groundwater has been adequately addressed including mitigation measures. I note that reference is made to an existing well on site, which is located to the north of the site. I note the application form (Part 1, 19), which states that the supply is from the Group Scheme.

Cultural Heritage

Section 3.11 of the EIS addresses the issue of Cultural heritage. There is an existing recorded monument located approximately 120m to the west of the subject site (CL – 047-050). I do not consider that the proposal would impact on same given the distance from the site and the localised nature of the development within the existing site.

Climate

Meteorological data from Shannon Airport station is presented in Section 3.9 of the EIS. It is stated that the proposed development will not have any effect on climatological conditions at the site.

Conclusion

I have no objection to the principle of the development as proposed and consider that same is in keeping with the existing use established on the site. However there are a number of items that need to be clarified and details to be submitted as outlined above. As such it is considered that a request for further information should be sought.

Recommendation

Having regard to the plans and particular submitted with the application and my inspection it is recommended that **further information** be requested as follows:

1. You are advised that the Planning Authority is obliged under EU (Natural Habitats) Regulations 1997, when considering an application for planning permission in respect of a proposed development that is not directly connected with, or necessary to the management of, a European site but likely to have a significant effect thereon either individually or in combination with other developments, to ensure that an appropriate assessment of the implications for the site in view of the site's conservation objectives is undertaken.

   Having regard to the indirect discharge to the Creegh River and Skivileen River and further down stream to the sea off Carrowmore Dunes, SAC, (Site Code 2250) an EU Habitats Directive Article 6(3) **Appropriate Assessment** is required for this project. You are asked to submit same and note that the qualifying Interests for Carrowmore Dunes are Fixed coastal dunes with herbaceous vegetation (grey dunes), Shifting dunes along the shoreline with Ammophila arenaria (white dunes), Embryonic shifting dunes, Reefs and Narrow Mouthed Whorl Snail (Vertigo angustior). The assessment should be based on a full and detailed project description, including an assessment of the development at both construction and operation stages.

2. With regard to visual amenity you are advised that the Planning Authority have no objection to the height of the proposed extension and proposed new buildings. It is noted from the drawings submitted that the ridge level of the extension is at 48.91m, with the existing building having a ridge level of 45.91m (difference of 3m). However the EIS states (p. 232) that the new extension is to have a height of 1.39m above that of the existing building. You are asked to clarify this point.

3. There are serious concerns with regard to the proposal on grounds of residential amenity having regard to the extended opening hours proposed as part of the development which it is considered would give rise to a significant intensification of use on this site on what is essentially a rural area. In particular concerns arise from the noise levels associated with the development. It is noted that the night time noise results as detailed in Table 3.7.5 (p. 185), indicate that the noise levels were exceeded. Considering the additional hours proposed concerns are expressed with regard to the noise impacts of the proposal on adjoining properties. You are therefore requested to outline the rationale for the extended opening hours and submit additional proposals in order to address noise issues from adjoining properties.

4. With regard to the glass bunkers to the north of the site, it is noted that these would be located approximately 60m from an existing dwelling house. Due to the nature of these bunkers it is considered that noise levels would be high during tipping of glass into same and as such may impact significantly on the amenities of the nearby property. Please submit proposals to address this issue, outlining any noise mitigation measures for this part of the development.

5. There are some concerns with regard to the impact of the End of Life Vehicles unit in terms of any noise implications from same. This does not appear to have been addressed in the EIS. Please therefore outline proposals with regard to noise mitigation measures from this element of the proposal.

6. The Planning Authority have concerns with regard to odours emanating from the proposal having regard to the nature of the biostabilisation plant, and the proximity of dwellings in the vicinity of the site. Reference is made on page 172 of the EIS to an odour management plan. You are asked to submit further details in relation to this management plan, outlining any proposals to off set odours in the immediate area.

7. There are some concerns in relation to bio-aerosols as a result of the biostabilisation building. It is noted that the EIS states that bio aerosol emissions from the composting process will not 'significantly' increase the background bio aerosol levels. It is considered that there should be certainty in relation to odour emissions and practical mitigation measures should be described in considerable detail. Please address this.

8. (a) With regard to traffic safety you are asked to submit details of an AutoTruck analysis within the subject site in order to demonstrate that adequate turning movements are available for trucks within the site boundaries.

   (b) It is noted that the site currently disposes 5000 tonnes of waste to landfill. You are asked to submit details of the estimated disposal amount to the landfill as a result of the proposed development and outline any traffic implications/movements for same.

   (c) Reference is made in the transportation chapter of the EIS to the use of a brown bin depot where waste will be collected by a 14 tonne truck. Please submit further details in relation to this depot in terms of its location and clarify if this is to be subject of a future planning application.

9. It is noted that Refuse Derived Fuel (RDF) is to be stored in a container to the rear of the site (p. 112). Please submit further details in relation to this fuel type and outline its proposed location on a site layout plan.

10. There are serious concerns that the proposal may give rise to vermin/rodents on this site and surrounding properties. It is noted that this hasn't been addressed in the flora and fauna section of the EIS. Please submit proposals to address this.

11. With regard to the final compost product, please submit details in relation to the proposals for same. Please clarify if this is to be sold on-site or off-site and please outline/address any traffic implications for same.

12. There are some concerns regarding the final disposal of waste products which will not be used for the bio-stabilisation plant. Please outline proposals for the final disposal of same.

Note: You are advised that a Fire Certificate will be required should a favourable decision be made on the proposed development. In this regard you may wish to contact the Fire Service to ensure adherence to any requirements they may have.

Garreth Ruane
Assistant Planner
16/02/10

Helen Quinn
Senior Executive Planner
16-02-2010

Inspection Report 29/01/2010

CLARE COUNTY COUNCIL PLANNING REPORT

File Ref.: 09-1270
Applicant: Clean Ireland Refuse & Recycling Ltd.
Development: Permission for development which will consist of (A) Permission for extensions (2014m2) to existing processing buildings (3070m2) previously granted Planning Ref: 04/2710, (B) Permission for biostabilisation building, (C) Permission for glass bunker storage area and (D) permission for end of life vehicles workshop area including ancillary works. An Environmental Impact Statement accompanies this application and a Waste Licence application (Ref: W0253-01) has been made to the Environmental Protection Agency.
Location: Ballynagun West, Cree
Due Date: 03/08/2010

The Site The subject site of an area of 2.95ha is located approximately 1.5km southwest of Creegh Village. The site at present contains the existing Clean Ireland facility consisting of processing sheds, office and ancillary buildings. The site also extends across the road to the north where there is currently a parking area. There are existing dwelling houses to the west (75m) and across the road to the northeast of the site.
The site notice was displayed on date of inspection, 25/01/2010, in accordance with the 2006 Planning and Development Regulations as amended.

Proposal

Permission is sought for the following:

(A) Permission for extensions (2014m2) to existing processing buildings (3070m2) previously granted Planning Ref: 04/2710. This extension extends to the south of the main processing building and the ridge height of same is almost 3m higher than the existing structure.
(B) Permission for biostabilisation building. This building provides for a Municipal Solid Waste (MSW) processing area, a biostabilisation plant area and a bio filter area. This is to be located to the south of the site with a total area of 5,678sqm and a maximum height of 10.7m. This building will process biodegradable materials from residential and commercial waste into soil amendment products (compost).
(C) Permission for glass bunker storage area. This is to be located on the northern site with an area of 340sqm and a height of almost 5m. The glass bunker on the site at present is to be removed.
(D) Permission for end of life vehicles workshop area. This is to be located to the west of the main site (1-3m from site boundary) and is to have a floor area of 217sqm and a height of 8.8m.
(E) Ancillary site works. These include fuel storage area, wheel and truck wash area, skip storage area, compost storage area, CHP stack and roof water retainer.

An Environmental Impact Statement has been submitted with the application, and applicants have made an application for a waste licence to the Environmental Protection Agency.
It is stated that the facility currently has an annual tonnage intake capped at 21,000 tonnes for waste handling and at 5,000 tonnes for the annual disposal fraction to landfill. The current proposal would allow the facility to increase the tonnes per annum from 21,000 tonnes to 64,000 tonnes.
The site currently obtains a water supply from the Drumellihy-Cree GWS and an on-site bored well. Surface water is to be disposed to existing watercourses and wastewater is disposed to an existing treatment system and percolation area.

Policy

County Development Plan

CDP 7
It is the policy of the Planning Authority to support the provision of waste management facilities such as bring bank sites and waste transfer sites and to this end the Planning Authority will require all developments to take account of the provisions of the waste management plan.

West Clare Local Area Plan 2009-2015

The subject site is located within the zoned cluster of Ballynagun where the following applies:

Other Settlement Land

The site is located in land zoned **Other Settlement Land**, the objective of which is to conserve and enhance the quality and character of the area, to protect residential amenity and allow for development appropriate to the sustainable growth of the settlement.

Policy INF S9 Implementation of Regional Waste Plan Objectives

It is the policy of the Council to implement the Regional Waste management Plan and any future amendments/revisions.

Policy INF S10 Landfill or Waste Transfer Stations

Development proposals for landfill sites or waste transfer stations will be considered where it can clearly be demonstrated that:

Environmental, geological, landscape and ecological impacts are acceptable under the terms of an environmental impact assessment which may be required; and

There are no unacceptable effects on the amenities of existing residents or transportation links in the area.

Policy E2 – Employment Location

Proposals for employment-generating development will be encouraged to locate within settlements where service infrastructure, amenities and human resources are more readily available.

Policy E3 – Employment Related Development

Proposals for new employment generating development or extensions to existing employment-generating development will be favourably considered where it can be clearly demonstrated that:

- They are of a scale, in terms of number of employees and site and building size, suitable for the location;
- They are appropriate to the respective area in terms of size and type of employment development to be provided
- They would not result in adverse transport effects
- They would have no significant adverse effects on the surrounding area or on the amenity of adjacent and nearby occupiers
- They would not result in the loss of actively managed agricultural land
- The proposed development is not for a type of use for which land is allocated elsewhere in the Plan area and there is no land reasonably available for development in such an area.

Replacement Waste Management Plan for the Limerick / Clare / Kerry Region 2006-2011,

This document outlines that Waste prevention and minimisation is the priority for the region, with a role for Local Authorities in promoting and developing the reuse and recycling of household, community, commercial and industrial waste. The plan recognises the role of the private sector in developing waste facilities and supports the provision of additional local waste transfer stations or material recovery where these can be shown to be consistent with the overall objectives of the Plan.

The existing Clean Ireland facility is not identified on the map of this document. The Lisdeen facility (Reg. 170-1) is identified as a waste transfer facility and recycling facility (no. 3 and 58, Map no. 9). There are no other waste facilities identified for the West Clare area with the nearest being the Central Facility at Inagh or the Ennis recycling facility.

Site History

09-306 – Permission granted to Clean Ireland Ltd for retention permission for (A) RETENTION permission for extensions to existing processing buildings previously granted Planning Ref: 04/2710, (B) Revision of boundaries (c0.35ha) and (C) RETENTION permission for ESB substation including ancillary works, subject to 3 no. conditions. Constructed and development contributions paid.

08-846 – Permission granted to for (A) permission for material change of use of a dwelling house to administration offices and (B) revision of the existing boundary to include the dwelling and associated land within the facility, subject to 3 no. conditions. Constructed/developed and dev contributions paid.

04-2710 - (a) retention permission for an existing extension of the waste processing building; for a bunded fuel storage shed; a car park with capacity for 15 cars; extension of the site boundary (b) permission for further extension of the waste processing building, a weighbridge, an office building and a green area to the south of the facility. Granted subject to 23 no. conditions. Constructed/developed and dev contributions paid.

99-1374 – Permission granted to Michael O Donoghue to construct a commercial building, granted subject to 15 no. conditions.

Pre-Planning
PPI 08-151 – Notes attached.

Technical Reports
Environment
Received on 15/02/10 – contents noted.

Roads Dept
Applicant is requested to submit Autotrack simulations or simulations of a similar nature illustrating how trucks can manoeuvre safely within the confines of the site.
The local road (L6108) is in good condition and does not require any additional works to be carried out in order to cater for an increase in traffic as a result of the proposal.

Roads Dept (following FI receipt)
Consider that autotrack simulations do not clearly demonstrate turning movements of refuse vehicles.

Fire Dept
Outlines requirements in relation to the building regulations.
Notes that the full detail of the application will be dealt with at the Building Control Stage and that a Fire Safety Certificate will be required for the proposal.

Submissions from Prescribed Bodies
An Taisce
That there is compliance for rural development within the development plan in terms of design, landscape designation and other relevant criteria.
Hours of operation appear excessive.
Public safety and road safety.
Proposal will result in a three-fold increase in volume and a correlating increase in truck movements.
There is no indication whether the local or regional road system is capable of such movements.
There is 24 house/day acceptable level indicated. This should be assessed in terms of residential amenity.
Proposal would result in greater noise pollution at this location. The impact of same on adjoining properties needs to be assessed.
Air pollution – should be limited so as not to have health and safety implications.

EPA
State that the EPA is currently assessing a waste licence for application for this development.
The submission outlines the criteria upon which an application is assessed.

The above submissions have been considered in assessing this application.

3rd Party Observations
None recieved.

Representations
None.

Environmental Impact Assessment
An EIS has been submitted with the application. I have read the contents of same and consider that same is generally acceptable. The issue of alternatives has been addressed in Section 1.4 of the EIS. In my opinion, the EIS is considered to be in compliant with Article 94 of the Planning and Development Regulations, 2001-2007, as amended.

Appropriate Assessment Screening
The proposed development is not located in close proximity to any Natura 2000 site. However there are 3 no. Natura 2000 sites in the general area:

- Tullaher Lough & Bog, SAC and SPA, Site Code 70
- Carrowmore Dunes, SAC, Site Code 2250
- Carrowmore Point to Spanish Point & Islands and Mid-Clare Coast, SAC, Site Code 1021

Notably, indirect discharge to the Creegh River and Skivileen River and further down stream to the sea off Carrowmore Dunes is a consideration. The qualifying Interests for Carrowmore Dunes are Fixed coastal dunes with herbaceous vegetation (grey dunes), Shifting dunes along the shoreline with Ammophila arenaria (white dunes), Embryonic shifting dunes, Reefs and Narrow Mouthed Whorl Snail (Vertigo angustior).

The Local Authority is obliged under EU (Natural Habitats) Regulations 1997 when duly considering an application for planning permission, or the Board when duly considering an appeal on an application for planning permission, in respect of a proposed development that is not directly connected with or necessary to the management of, a European site but likely to have a significant effect thereon either individually or in combination with other developments, shall ensure that an appropriate assessment of the implications for the site in view of the site's conservation objectives is undertaken.

Part V
n/a

Assessment
I refer to the previous planning report in which further information was requested as follows:

1. You are advised that the Planning Authority is obliged under EU (Natural Habitats) Regulations 1997, when considering an application for planning permission in respect of a proposed development that is not directly connected with, or necessary to the management of, a European site but likely to have a significant effect thereon either individually or in combination with other developments, to ensure that an appropriate assessment of the implications for the site in view of the site's conservation objectives is undertaken.

   Having regard to the indirect discharge to the Creegh River and Skivileen River and further down stream to the sea off Carrowmore Dunes, SAC, (Site Code 2250) an EU Habitats Directive Article 6(3) **Appropriate Assessment** is required for this project. You are asked to submit same and note that the qualifying Interests for Carrowmore Dunes are Fixed coastal dunes with herbaceous vegetation (grey dunes), Shifting dunes along the shoreline with Ammophila arenaria (white dunes), Embryonic shifting dunes, Reefs and Narrow Mouthed Whorl Snail (Vertigo angustior). The assessment should be based on a full and detailed project description, including an assessment of the development at both construction and operation stages.

2. With regard to visual amenity you are advised that the Planning Authority have no objection to the height of the proposed extension and proposed new buildings. It is noted from the drawings submitted that the ridge level of the extension is at 48.91m, with the existing building having a ridge level of 45.91m (difference of 3m). However the EIS states (p. 232) that the new extension is to have a height of 1.39m above that of the existing building. You are asked to clarify this point.

3. There are serious concerns with regard to the proposal on grounds of residential amenity having regard to the extended opening hours proposed as part of the development which it is considered would give rise to a significant intensification of use on this site on what is essentially a rural area. In particular concerns arise from the noise levels associated with the development. It is noted that the night time noise results as detailed in Table 3.7.5 (p. 185), indicate that the noise levels were exceeded. Considering the additional hours proposed concerns are expressed

with regard to the noise impacts of the proposal on adjoining properties. You are therefore requested to outline the rationale for the extended opening hours and submit additional proposals in order to address noise issues from adjoining properties.

4. With regard to the glass bunkers to the north of the site, it is noted that these would be located approximately 60m from an existing dwelling house. Due to the nature of these bunkers it is considered that noise levels would be high during tipping of glass into same and as such may impact significantly on the amenities of the nearby property. Please submit proposals to address this issue, outlining any noise mitigation measures for this part of the development.

5. There are some concerns with regard to the impact of the End of Life Vehicles unit in terms of any noise implications from same. This does not appear to have been addressed in the EIS. Please therefore outline proposals with regard to noise mitigation measures from this element of the proposal.

6. The Planning Authority have concerns with regard to odours emanating from the proposal having regard to the nature of the biostabilisation plant, and the proximity of dwellings in the vicinity of the site. Reference is made on page 172 of the EIS to an odour management plan. You are asked to submit further details in relation to this management plan, outlining any proposals to off set odours in the immediate area.

7. There are some concerns in relation to bio-aerosols as a result of the biostabilisation building. It is noted that the EIS states that bio aerosol emissions from the composting process will not 'significantly' increase the background bio aerosol levels. It is considered that there should be certainty in relation to odour emissions and practical mitigation measures should be described in considerable detail. Please address this.

8. (a) With regard to traffic safety you are asked to submit details of an AutoTruck analysis within the subject site in order to demonstrate that adequate turning movements are available for trucks within the site boundaries.

   (b) It is noted that the site currently disposes 5000 tonnes of waste to landfill. You are asked to submit details of the estimated disposal amount to the landfill as a result of the proposed development and outline any traffic implications/movements for same.

   (c) Reference is made in the transportation chapter of the EIS to the use of a brown bin depot where waste will be collected by a 14 tonne truck. Please submit further details in relation to this depot in terms of its location and clarify if this is to be subject of a future planning application.

9 It is noted that Refuse Derived Fuel (RDF) is to be stored in a container to the rear of the site (p. 112). Please submit further details in relation to this fuel type and outline its proposed location on a site layout plan.

10. There are serious concerns that the proposal may give rise to vermin/rodents on this site and surrounding properties. It is noted that this hasn't been addressed in the flora and fauna section of the EIS. Please submit proposals to address this.

11. With regard to the final compost product, please submit details in relation to the proposals for same. Please clarify if this is to be sold on-site or off-site and please outline/address any traffic implications for same.

12. There are some concerns regarding the final disposal of waste products which will not be used for the bio-stabilisation plant. Please outline proposals for the final disposal of same.

Note: You are advised that a Fire Certificate will be required should a favourable decision be made on the proposed development. In this regard you may wish to contact the Fire Service to ensure adherence to any requirements they may have.

In response to point no. 1 a Habitats Directive Screening Assessment has been submitted and the following is noted:

- The subject site is located 3.5km from the nearest Natura 2000 site.
- Surface water is directed through the surface water collection system and discharged off site through a siltation trap and oil interceptor
- There is no direct discharge into a river or stream from the facility
- Qualifying interests of the SAC (species) include the snail *Vertigo angustior*
- Qualifying interests of the SAC (habitats) include fixed coastal dunes (grey dunes), shifting dunes (white dunes), embryonic dunes and reefs.
- Direct and 'in-combination' effects have also been considered, including developments at Doonbeg Golf Club, and it is considered that the proposal would represent an insignificant component of the combined projects.

- There will be no direct impact on the SAC through construction work.
- There is a distance of 6.5km from the outfall through all drainage channels to where the water enters Doughmore Bay.
- Indirect hydrological link buffers the Natura 2000 site from potential contaminants.
- Monitoring would prevent discharge into the bay
- There will be no reduction in habitat area or species fragmentation, including the *Vertigo angustior* from the proposal

The report concludes that there are no likely significant impacts on the qualifying interest of the designated sites or the integrity of the site arising from the proposed development. As such a Stage 2 assessment is not required. This aspect of the application was discussed with the Heritage Officer, who is satisfied with the conclusions reached on same. Having read the report I consider that the proposal would not impact on the integrity of the designated sites.

With regard to point no. 2 the height of the proposed structures has been clarified and the heights as referred to in the EIS relate to the differences between the ground levels of same. This is considered acceptable.

In response to point no. 3 the following is noted:

- Applicants will not conduct outdoor activities after 10pm
- Processing activities will be carried out indoors ensuring all roller doors remain closed and there is no movement of plant or waste vehicles
- Extended hours of operation are required in order to make the facility more profitable and efficient in terms of equipment usage and material output
- In order to achieve higher recycling rates more time would be required for processing material
- Increase of customer numbers has led to more material requiring processing
- Processing times are currently 4-5 tonnes per hour, and current working hours are not sufficient
- It is stated that there will be no activity that will generate noise on site after 10pm

The applicant's response to the above is noted. However there are still concerns with regard to the impact of the activities on this site on the amenities of the area, which despite the OSL zoning is essentially a rural area. As such it is considered that the opening hours should be restricted to 7am to 10pm, in the interests of preserving the amenities of the area.

In response to point no. 4 the following is noted:

- It is stated that the tipping of glass will occur for approx 1 minute during the day, once a week
- Closest noise sensitive receptor is 47m away
- It was not possible to conduct a 'glass tipping exercise' at the proposed location as no hard standing area in place
- A 'glass tipping exercise' was conducted to the southwest of the site where a noise result of 67.7dB(A) was recorded (max of 94.1dB(A)) and 90% of the duration of the monitoring period was 54.1dB(A).
- Mitigation measures to prevent any nuisance will involve only tipping for once a week
- A technical report on the tipping exercise has also been included for same

I would have some concerns with regard to this aspect of the proposal. Whilst tipping of the bottles into the bunkers may occur once a week, there would be further emptying of these bunkers and transfer into the main site and as such the proposal would result in the creation of more noise and disturbance. AS such having regard to the proximity of this element of the proposal to a nearby dwelling house, it is considered reasonable that same should be either omitted from this site or relocated to the main site.

With regard to point no. 5, the following is noted:

- ELV's will be stored on a hardstanding area with oil interceptors facilitating any run-off
- The 'depollution' shed will contain an impermeable floor to avoid any run-off.
- Vehicles will be dismantled gradually starting with oil filters, battery, wheels etc until the vehicle is classed as non-hazardous waste, which can then be recycled.
- Vehicles are then 'baled' by a crusher where noise levels from same would not exceed 80dB(A) and are then stored before being removed from the site
- Hazardous materials removed from vehicles will be stored in a bunded area before being removed off the site.
- The main noise levels associated with the proposal are from the airbags where the deployment of same can reach a noise level of 150dB, though same will be carried out indoors

There are some concerns with regard to this element of the proposal in terms of noise and having regard to the proximity of same to the western site boundary. As such it is considered reasonable that this element of the proposal shall only operate from Monday to Saturday, from 8am to 6pm. Furthermore all activities relating to same shall take place indoors only.

With regard to point no. 6 the following is noted:

- Details of the odour management plan have been submitted
- No odour modelling has been completed at this stage
- Date from similar facilities indicate that the bio-filter configuration will result in <3 OU/m³ within 180-200m from the bio-filter emission point
- It is stated that there will be no odour nuisance as a result of the proposal based on the fact that sensitive receptors are outside the 200m radius

With regard to point no. 7 the following is noted:

- A risk assessment to ascertain ground level concentration impact of bio-aerosols in the vicinity of the proposed site has been carried out
- Activities associated with the dry fermentation/composting process will be carried out indoors
- Details of exposure limits have been outlined with a 'worse case' scenario
- Ground level output concentrations were below the assessment threshold presented

The above two points were discussed with the Environment Section who note that the proposal is subject to a waste licence from the EPA which regulates emissions from the proposal. In addition under section 257 of the Planning and Development Act 2000, a planning authority, where a waste licence is required from the EPA for an activity, may refuse permission on environmental grounds but may not impose conditions for the purpose of controlling emissions.

With regard to point no. 8 the following is noted:

- A revised site layout plan outlining the auto track analysis of the internal roadway arrangement.
- Currently the facility sends c. 5,000 tonnes per annum to landfill
- Once the Municipal Solid Waste (MSW) area is operational then it is anticipated that less than 2,000 tonnes would be sent to landfill per annum
- Company currently has a depot located in Smithstown Industrial Estate, which has a waste permit (granted by Clare CoCo), which allows for the reception, storage and transfer of waste.

I am satisfied in relation to the above. Whilst the report from Road Design is noted it is considered that the traffic movements within the site are adequate given the constraints of same.

The following is noted with regard to point no. 9

- Once MSW is mechanically seperated, and organic and non-recyclable materials are removed, RDF will be baled and wrapped in plastic
- Will be stored adjacent to mechanical sorting line in the Biostabilisation building and in the current waste drop down area, located to the centre of the site
- 1,108 bales (approx 840 tonnes) will be stored indoors between these locations
- RDF will be transported in 24 tonne containers to Foynes Port
- Over a four week period 1,000 tonnes of RDF will be moved from the Creegh site to Foynes Port
- 42 traffic movements will be undertaken, resulting in an average of 2 pick ups per day

The above points are noted and I have no objection to same.

With regard to point no. 10 the following is noted:

- The facility will be enclosed with all activities occurring within the building, including tipping of un-segregated and bio-waste, which will prevent access of rodents and birds
- Bait boxes will be deployed around the facility to capture any rodents that may gain access to the interior
- Waste will be transferred to the hydrolysis bays within 24 hours
- Temperatures within the hydrolysis bays reach 40-50° which would kill any maggots/flys
- Waste will be held within the hydrolysis bays for 4-5 days after which the material will be sealed within dry fermentation and tunnel composting systems precluding access by rodents
- The final compost will be stored for over 10 weeks and will be stabilised and pasteurised, and as such will not attract vermin

The above points are noted and I have no objection to same.

With regard to point no. 11, it is stated that the final compost will be sold on site where existing customers (dropping off recyclables) will be targeted to purchase the compost. There are currently no proposals for bulk movements. There are some concerns with regard to this element of the proposal as it is considered that this aspect hasn't been dealt with in terms of traffic movements/drop off areas for private vehicles. As such it is considered that this element of the proposal should be omitted from the current application.

With regard to point no. 12 it is stated that waste materials that cannot be sold as RDF will be disposed to a landfill as there is currently no alternative for same. As outlined earlier, 2,000 tonnes of materials will be disposed per annum to landfill.

Conclusion

I am satisfied with the applicant's response to the further information as outlined above. There are some concerns with regard to the proposed operating hours, the glass bunkers, and use of ELV facility, having regard to the noise implications of same and the proximity of the structure to dwelling houses. Conditions restricting same shall be attached. Development contributions shall be charged for floor area of new developments, namely the extension, the ELV facility and the Biostabilisation unit (7,909sqm).

Recommendation

Having regard to the plans and particulars submitted with the application and my inspection of the site I recommend that planning permission be **Granted** subject to the following conditions:

Schedule I

Having regard to the existing use established on site, the intended use of the proposed development, the provisions of the policies of the current Development Plan and the pattern of development in the area, it is considered that, subject to conditions, the proposed development would not seriously injure the amenities of the area or of property in the vicinity would be acceptable in terms of traffic safety and convenience and would not be contrary to the proper planning and sustainable development of the area.

Schedule II

1. The development shall be carried out in accordance with plans and particulars submitted on 17/12/2010 and further information received on the 09/06/2010, except where conditions hereunder specify otherwise. Where a condition requires details to be agreed with the Planning Authority, the developer shall agree such details in writing with the Planning Authority prior to commencement of development and the development shall be carried out and completed in accordance with the agreed particulars

   Reason: In the interests of clarity.

2. (a) Operation hours of the proposed facility shall be from 7am to 10pm, Monday to Saturday; and 8am to 6pm on Sundays only.
   (b) The end of life vehicles workshop (ELV) shall operate from 8am to 6pm, Monday to Saturday, only.
   (c) All works to end of life vehicles shall be carried out within the proposed workshop only.
   (d) No direct sale of products shall take place on this site to visiting members of the public.

   Reason: In the interests of residential amenity and having regard to the 'Other Settlement Land' zoning of the site.

3. The proposed glass bunkers shall be either omitted from the scheme or relocated to the southern part of the site. Prior to commencement of development applicant shall submit a revised site layout plan indicating proposals for same for the agreement and approval of the Planning Authority.

   Reason: In the interests of residential amenity and having regard to the proximity of the glass bunkers to nearby dwelling houses.

4. Prior to the commencement of development the developer shall pay a contribution of €152,406.43 to Clare County Council (Planning Authority) in respect of public infrastructure and facilities benefiting the development.
   The amount of this contribution is calculated in accordance with the Council's prevailing Development Contribution Scheme and shall be adjusted from January 1st next and annually thereafter (unless previously discharged) in line with the Wholesale Price Index – Building and Construction (published by the Central Statistics Office) unless the scheme is superseded by a further Development Contribution Scheme adopted by the Council.

   Reason: It is considered appropriate that the developer should contribute towards the cost of public infrastructure and facilities benefiting the development, as provided for in the Councils prevailing Development Contribution Scheme, made in accordance with Section 48 of the Planning and Development Act 2000, and that the level of contribution payable should be adjusted at a rate in the manner specified in that scheme.

5. Prior to commencement of development, details for a comprehensive and detailed landscape design plan shall be submitted and agreed with the planning authority. This shall include details of vegetation and trees to be retained and proposals for their protection of trees during construction works. The plans shall also include details for hard and soft landscaping, including boundary treatments, the provision of earthern berms, and shall include a timescale for its implementation.

Reason: In the interests of visual amenity and the proper planning and development of the area.

6. (a) All surface water runoff from the site shall be routed via silt trap and oil/petrol/diesel interceptors to prevent accidental spillages of oils, greases, solvents or other contaminated matter entering the surface water drains, surface water courses or directly or indirectly to groundwater.
(b) Any liquid storage area shall be contained within approved bunds capable of containing at least 110% of the volume of the largest drum/tank within the bund.
(c) Drainage from all bunded areas shall be controlled to ensure that no overflow of contaminated waters from the bunded area takes place.
(d) All loading and unloading of materials shall be carried out in designated areas protected against spillage and leachate run-off.
(e) Vehicle/plant refuelling and washing areas shall be fitted with oil/water interceptors. All contaminated water shall flow through same.
(f) Surface water shall not be discharged to the public road or existing on-site wastewater treatment system.

Reason: In the interests of visual amenity and the proper planning and development of the area.

7. For the Construction phase:
   (a) No work shall take place outside the hours of 07.30 to 18.30 hours, Monday – Saturday. Deviation from these times will only be allowed in exceptional circumstances where prior written approval has been received from the planning authority.
   (b) Adequate temporary carparking accommodation shall be provided on the site for the use of employees engaged in construction work on the site.
   (c) All on site construction vehicles shall be equipped with silencers – all such vehicles shall be operated and maintained in accordance with the manufacturers instructions.
   (d) All oils, solvents, paints and other chemicals used during the construction phase shall be stored within temporary bunded areas

Reason: To protect the amenities of adjacent properties, in the interests of orderly development.

8. The operator shall ensure that fine dry loads exiting the waste recovery facility site are covered or sprayed prior to exiting the site such that the amenities of the area are protected and in order to prevent dust pollution.

Reason: In the interest of protecting the amenities of the area and preventing dust pollution.

9. Noise emissions from the facility shall not exceed 55dB(A)$_{LAeq,\ 30\ mins}$ during the daytime and 45 dB(A)$_{LAeq,\ 15\ min}$ during the night time at the façade of the nearest noise sensitive locations, subject to adjustment in the event of a change in the accepted limits for industrial noise. If requested to do so by the Planning Authority, the applicant shall identify Nosier Sensitive Locations and shall under take monitoring as required. Noise measurements shall be made in accordance with ISO 1996, acoustics and measurement of environmental noise, Parts 1, 2 and

3, or with current recognized Best Practice at the time of the survey and shall include monitoring for tonal/impulsive noise. A detailed noise survey report will be submitted to the Planning Authority within one month of completion of any requested survey. The cost of any monitoring and/or survey shall be borne by the operator.

Reason: In the interest of protection of amenities at this location and the prevention of noise pollution.

10. Prior to commencement of development, applicants shall submit full details of all external colour finishes for the proposed new buildings, for the agreement and approval of the Planning Authority. The colour of new buildings shall be consistent with those of the existing structures on site.

    Reason: In the interest of visual amenity.

11. Construction and demolition waste shall be managed in accordance with a construction waste and demolition management plan, which shall be submitted to, and agreed in writing with, the planning authority prior to commencement of development. This plan shall be prepared in accordance with the "Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects", published by the Department of the Environment, Heritage and Local Government in July 2006.

    Reason: In the interests of sustainable waste management.

12. All manholes in public circulation areas shall be provided with heavy-duty manhole covers.

    Reason: In the interest of proper development.

13. No advertisement sign or structure shall be erected (including those which are "exempted development") without planning permission having first been obtained.

    Reason: In the interest of traffic safety and visual amenity.

Garreth Ruane
Assistant Planner
28/07/10

Helen Quinn
Senior Executive Planner
29-07-2010

DISPERSION MODELLING OF AIR EMISSIONS FROM THE PROPOSED NEW AIR EMISSION POINT AT THE CLEAN IRELAND FACILITY IN CO. CLARE

For the Attention of: Mr. Paddy Hedigan
Clean Ireland
Ballyinagun,
West Cree
Co. Clare

Prepared by: Andrew Mahon
Air Monitoring Teamleader

Report Reference: ECS4549
Issue Date: 30th May 2013

Executive Summary

Anua Environmental was commissioned by Clean Ireland to carry out an Air Dispersion Modelling impact assessment of a Jenbacher biogas engine stack which is proposed to be installed on the planned composting plant at the Clean Ireland facility, Ballyinagun, West Cree, County Clare as part of a proposed IPPC licence Technical Amendment.

The original assessment was completed in February 2012 report reference ECS4155 for those parameters identified by the technical specifications of the proposed biogas engine namely SO_2, CO and NO_2. This assessment (Report Ref: ECS4155) established that the parameter of potentially greatest impact in terms of ambient air quality was hourly NO_2 based on design emission concentrations and flow rates, the year of greatest impact was 2009.

The assessment then looked at the required stack height for the biogas engine to meet the criteria of process contribution of less than 66.7% of the ambient air quality standard potential air quality was therefore based on hourly NO2 impact from the operation of the engine using 2009.

Dispersion model runs were undertaken to determine the impact of emissions from 8m, 10m, 12m, 14m and 16m stacks using the same emission, metrological, terrain and operating data.

The predicted model results from report ref ECS4155 indicated that a stack height of 14m will be sufficient to meet the criteria of process contribution of less than 66.7% of the ambient air quality standard for hourly NO2.

Runs were also undertake to determine predicted impacts of SO2 and CO emissions from a 14m stack which were compared against the ambient air quality limits for these parameters. These dispersion model runs showed these parameters will not have a significant impact on ambient air quality at the boundary or beyond the boundary of the facility on the surrounding area.

Subsequent to the submission of this report (ECS4155) and meeting between representatives of the EPA, Clean Ireland and Bord na Mona, further information was sought by the EPA. In correspondence from the EPA dated the 26th of March 2013 to Mr. Paddy Hedigan of Clean Ireland Re: Notice in accordance with Article 16(1) of the Waste Management (Licensing) Regulations. Clean Ireland were requested to perform further modelling for emissions of Hydrogen Sulphide (H_2S), Hydrogen Chloride (HCl) and Hydrogen fluoride (HF) at concentrations of 5mg/m3, 30mg/m3 and 5mg/m3 respectfully.

Therefore further model runs were completed for H_2S, HCl and HF using a stack height of 14m and 2009 met data. The results indicate that NO_2 remains the parameter of potentially greatest impact in terms of ambient air quality. The results of H_2S, HCl and HF are compared against WHO and German VDI ambient air quality standards in the absence of Irish Ambient Air Quality Standards for these parameters

The model contains a number of significant assumptions which would indicate that the actual impact on ambient air quality would be significantly lower than that presented in the assessment.

Respectively Submitted

Mr. Andrew Mahon
Air Monitoring Teamleader

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1.0 INTRODUCTION

Anua, was commissioned by Clean Ireland to compile a dispersion modelling assessment as part of a proposed technical amendment to the existing Waste Reg No. W0253-01 arising from the planned development of a composting facility with a Biogas engine within the boundary of the Clean Ireland facility in West Cree, Co. Clare.

The scope of this assessment was to revise the original assessment ECS4155 and incorporate the potential impact of emissions of H_2S, HCl and HF at concentrations of 5mg/m^3, 30mg/m^3 and 5mg/m^3 on ambient air quality from the proposed Biogas engine with a stack height of 14m. This report also includes the potential air quality impacts of the operation of the engine on the ambient air levels of Nitrogen Dioxide, Sulphur Dioxide, and Carbon Monoxide on the surrounding environment as previously predicted in report ECS4155.

The impact assessments are presented in the form of concentration contours/isopleths produced using US EPA approved and recommended Irish EPA dispersion modelling techniques (AERMOD version 7.7.1.2 Pro Plus -3D Analyst version 2.2.5.1. AERMOD pro plus). The assessment adhered to the requirements of the Air Dispersion Modelling from Industrial Installations Guidance Note (AG4). Concentration contours are superimposed on an aerial photograph of the locality indicating percentile pollutant concentrations (using a worst case year of hourly meteorological data).

2.0 SCOPE

2.1 Scope of Assessment

The scope of the assessment is to establish the impact of additional emission parameters namely H_2S, HCl and HF at emission concentrations selected by the EPA against relevant air quality standards.

This assessment used the proposed stack height of 14m determined from the previous dispersion model report reference ECS4155.

Results were checked for compliance with ambient air quality standards arising from the potential impact on ambient air quality of the operation of the proposed biogas engine.

The location of the existing Clean Ireland facilty is outlined in Figure 2.1 below.

Figure 2.1 Location of Existing Clean Ireland Facility

Figure 2.2 overleaf indicates the proposed location of the Biogas Engine emission point within the boundary of the facility.

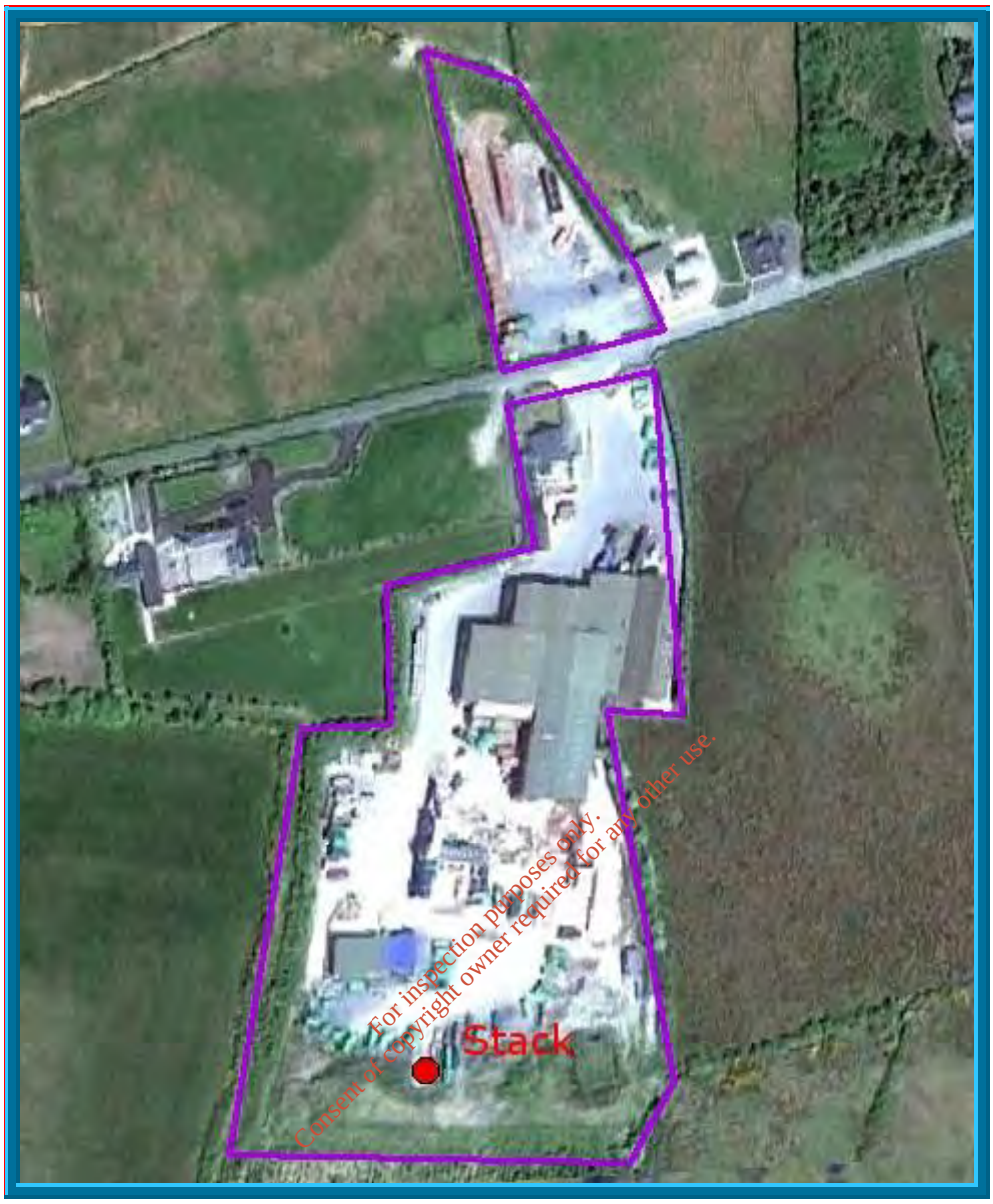

Figure 2.2 Proposed location of Biogas Engine Stack

3.0 POLLUTANTS/AIR QUALITY GUIDELINES

3.1 Pollutants

Following review of the technical specifications for the proposed Jenbacher Biogas engine the most significant air pollutants emitted during the operation of the engine were identified. These pollutants include Nitrogen Dioxide (NO_2) and Sulphur Dioxide (SO_2) and Carbon Monoxide (CO). Subsequently the EPA requested the inclusion of H_2S, HCl and HF.

3.2 Nitrogen Dioxide

Nitrogen Dioxide is classed as both a primary and a secondary pollutant, and it is one of a number of important oxides of nitrogen present in the atmosphere. Nitric Oxide (NO) and Nitrogen Dioxide (NO_2) are the most abundant man-made oxides of nitrogen in urban areas. These are formed in all high temperature combustion processes, although NO predominates. Around 90% of the emissions from combustion sources are of NO rather than NO_2. However, since the NO_x can all potentially be converted to NO_2 it is usual to express all of the NO_x as NO_2 when making mass emissions estimates.

As a primary pollutant NO_2 is emitted from all combustion processes (such as a gas/oil fired boiler or a car engine). The main sources of primary NO_2 from the facility will be from air emission stacks (4 in total) from the proposed peaking plant and the main emission stack from the existing facility. As a secondary pollutant NO_2 is derived from the oxidation of primary NO. Secondary pollution is usually derived from regional sources and may be used as an indicator of general air quality in the region.

Overall NO_x levels in Ireland may be regarded as moderate by international standards (reference: “Ireland’s Environment 2004”, EPA April 2004).

Nitric oxide is not generally considered to be harmful to health at the concentrations found in ambient atmosphere. Once NO is mixed with air containing ozone, it quickly combines with oxygen forming NO_2. In significant concentrations nitrogen dioxide can be highly toxic, causing serious lung damage with a delayed effect. Other health effects of exposure to nitrogen dioxide include shortness of breath and chest pains. It is also involved in the production of ground-level ozone, acid rain and smog.

Ambient Air Quality Standards Regulations 2011 (S.I. No.180 of 2011) established an hourly limit of 200 µg/m^3 and an annual mean limit of 40 µg/m^3 in respect of NO2. The hourly limit will permit no more than 18 values above the limit in a calendar year. Both limit values came into force on 12 April 2011.

TABLE 3.1: AIR QUALITY STANDARDS FOR NITROGEN OXIDES							
Pollutant	**Regulation**	**Limit Type**	**Margin of Tolerance**	**'Limit Value'**	**'Alert Threshold'**	**'Upper Assessment Threshold'**	**'Lower Assessment Threshold'**
Nitrogen Dioxide	S.I 180 2011	Hourly limit value NO_2 for the Protection of Human Health. Averaging period = 1 hour	50% on the 19th July 1999 decreasing on 1 Jan 2001 linearly to reach 0% by 1 Jan 2010	200 µg/m³ NO_2, not to be exceeded more than 18 times a calendar year	400 µg/m³ measured over three consecutive hours	70% of limit value (i.e. 140 µg/m³), not to be exceeded more than 18 times in any calendar year)	50% of limit value (i.e. 100 µg/m³), not to be exceeded more than 18 times in any calendar year)
		Annual limit value NO_2 for the Protection of Human Health. Averaging period = Calendar year	50% on the 19th July 1999, reducing on 1 January 2001 linearly to reach 0% by Jan 2010	40 µg/m³ NO_2		80% of limit value (i.e. 32 µg/m³)	65% of limit value (i.e. 26 µg/m³)
		Annual limit value for the Protection of Vegetation (for NO_x) Averaging period = Calendar year	None	30 µg/m³ NO_x		80% of limit value (24 µg/m³)	65% of limit value (i.e. 19.5 µg/m³)

3.3 Sulphur Dioxide

SO_2 is produced when fuels containing sulphur are burned. SO_2 is a corrosive acid gas and when mixed with moisture in the atmosphere creates sulphuric acid, which falls as acid rain. Both wet and dry deposition has been implicated in the damage and destruction of vegetation and in the degradation of soils, building materials and watercourses. The major sources of SO_2 in Ireland are from energy generation (electricity stations) and commercial & residential heating units. Transport's contribution is less significant since the introduction of sulphur less fuels but vehicles do emit some SO_2.

As is the case for Nitrogen Oxides the ambient air quality guidelines for Sulphur Dioxide are outlined in S.I. Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011). Table 3.2 overleaf outlines the applicable Air Quality Standards.

TABLE 3.2: AIR QUALITY STANDARDS FOR SULPHUR DIOXIDE							
Pollutant	**Regulation**	**Limit Type**	**Margin of Tolerance**	**'Limit Value'**	**'Alert Threshold'**	**'Upper Assessment Threshold'**	**'Lower Assessment Threshold'**
Sulphur Dioxide	S.I 180 of 2011	Hourly limit value for the Protection of Human Health. Averaging period = 1 hour	150 µg/m³ (43%)	350 µg/m³, not to be exceeded more than 24 times a calendar year	500 µg/m³ measured over three consecutive hours at locations representative of air quality over at least 100 km² or an entire zone or agglomeration, whichever is the smaller.	-	-
		Daily limit value for the Protection of Human Health. Averaging period = 24 hours	None	125 µg/m³, not to be exceeded more than 3 times a calendar year		60% of 24-hour limit value (i.e. 75 µg/m³, not to be exceeded more than 3 times in any calendar year)	40% of 24-hour limit value (i.e. 50 µg/m³, not to be exceeded more than 3 times in any calendar year)
		Limit value for the Protection of Ecosystems. Averaging period = Calendar year; and winter (1 Oct to 31 March)	None	20 µg/m³		60% of winter limit value (12 µg/m³)	40% of winter limit value (8 µg/m³)

3.4 Carbon Monoxide (CO)

Carbon monoxide is a colourless, odourless gas produced when fuels containing carbon are burned when there is insufficient oxygen. In the presence of an adequate supply of oxygen, most carbon monoxide produced during combustion is oxidised fully to Carbon Dioxide (CO2). However, this is not the case in spark ignition engines in motorcars, especially under idling and deceleration conditions. CO is regarded as a primary pollutant from all combustion processes. The emissions from petrol combustion are by far the main source of CO.

CO exerts its toxic effects after preferentially binding with haemoglobin (preventing the binding of oxygen needed by cells) via the capillaries of the lungs. It is mildly toxic to humans by inhalation, but can cause fatalities in significant concentrations as it essentially causes suffocation of the cells

Table 3.3 below illustrates the ambient air quality guidelines for CO as outlined in S.I. Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011)

TABLE 3.3: AIR QUALITY STANDARDS FOR PARTICULATE MATTER CO

Pollutant	Regulation	Limit Type	Margin of Tolerance	'Limit Value'	'Alert Threshold'	'Upper Assessment Threshold'	'Lower Assessment Threshold'
CO	S.I 180 of 2011	Maximum Daily 8 hour mean limit value for the Protection of Human Health.	60%	10 mg/m³	The Commission will also consider whether alert thresholds can be set, consistent with other pollutants in this Directive, for PM_{10}, $PM_{2,5}$ or particular fractions of particulate matter, as appropriate. -	70% of limit value (7mg/m^3)	50% of limit value (5mg/m^3)-

3.5 Hydrogen Sulphide (H_2S)

Hydrogen sulphide (H_2S) is a colourless gas, soluble in various liquids including water and alcohol. It can be formed under conditions of deficient oxygen, in the presence of organic material and sulphate. Most of the atmospheric hydrogen sulphide has natural origins**.** Human activities can release naturally occurring hydrogen sulphide into ambient air. For instance, some natural gas deposits contain up to 42% hydrogen sulphide. In industry, hydrogen sulphide can be formed whenever elemental sulphur or sulphur-containing compounds come into contact with organic materials at high temperatures. H_2S is a toxic gas and the health hazard depends upon both the duration of exposure and the concentration. The gas is an irritant of the lungs and at low concentrations irritates the eyes and the respiratory tract. Exposure may result in headache, fatigue, dizziness, staggering gait, and diarrhoea, followed sometimes by bronchitis and bronchopneumonia (Sax and Lewis, 1989).

Many countries/organisations do not have ambient air quality levels for H2S, as it is not perceived as a problem gas in most regions. The limits used in this assessment are given in the table 3.4 below.

TABLE 3.4 AMBIENT AIR QUALITY GUIDELINES FOR H2S			
Country/Institution	**Concentration**	**Averaging period**	**Implementation Date**
New Zealand	7 µg/m^3	1 Hour	May 2002
WHO	150 µg/m^3	24 hours	1997

3.6 Hydrochloric acid (HCl)

At room temperature, hydrogen chloride exists as either a colourless or slightly yellow gas. It is heavier than air, has a strong pungent odour and is very soluble in water. Upon contact with air it forms a dense white corrosive vapour and upon contact with water forms hydrochloric acid. When hydrogen chloride or hydrochloric acid are released into the environment, they become widely distributed into air and water.

Hydrogen chloride is formed by combustion related activities such as large coal burning power stations and incinerators. It is also formed in large quantities when materials such as plastics or polyvinyl chloride (PVC) are burnt.

Hydrochloric acid is corrosive to the eyes, skin, and mucous membranes. Acute (short-term) inhalation exposure may cause eye, nose, and respiratory tract irritation and inflammation and pulmonary edema in humans. Acute oral exposure may cause corrosion of the mucous membranes, esophagus, and stomach and dermal contact may produce severe burns, ulceration, and scarring in humans. Chronic (long-term) occupational exposure to hydrochloric acid has been reported to cause gastritis, chronic bronchitis, dermatitis, and photosensitization in workers. Prolonged exposure to low concentrations may also cause dental discoloration and erosion

In Ireland there is no Ambient Air Quality Guideline for HCl, therefore the limits used in this assessment are given in the table 3.4 below and are taken from the German VDI (2002) Technical Instructions on Air Quality.

TABLE 3.5 AMBIENT AIR QUALITY GUIDELINES FOR HCl

Country/Institution	Concentration	Averaging period	Implementation Date
German VDI	100 µg/m^3	98th%tile of 1-Hourly Averages	2002

3.7 Hydrogen Fluoride

Under normal conditions, Hydrogen fluoride will be a colourless gas, which has a sharp, pungent smell. It is highly toxic and irritating, but non-flammable. Hydrogen fluoride is however usually found as a strong solution in water, whereby it is Hydrofluoric acid. Hydrofluoric acid is an extremely strong acid. It will severely corrode metals, glass, minerals and many organic (carbon-containing) substances - and will release highly flammable hydrogen in the process.

The main releases of Hydrogen fluoride occur from high temperature industrial processes. In the UK, the most significant releases will occur from coal-fired power stations. Hydrogen fluoride may also be released when products containing fluorine compounds (such as plastics and rubbers, fire extinguishing agents, aerosol propellants and other chemicals) are burned. Hydrogen fluoride is also released naturally from volcanic eruptions, but the amounts emitted are small in comparison to man-made sources.

Hydrogen fluoride gas is highly corrosive and will damage metal structures and buildings or monuments made of limestone. If high levels of Hydrogen fluoride gas dissolve in a water body, aquatic organisms will be harmed and even killed. Hydrogen fluoride gas can attach itself to particles in the air, which are then deposited on soils or plants. If significant amounts are ingested by wildlife and cattle, they can suffer from an overdose of Fluoride known as "Fluorosis". These effects are only likely as a result of an accidental spill of much larger amounts of Hydrogen fluoride than are typically released to the environment. The very high solubility of Hydrogen fluoride gas means that releases to the atmosphere are quickly washed out by rain and moisture in the air. Some soils and lakes may be sensitive to this acid rain if amounts of it falling are above certain amounts defined as "critical loads". This makes Hydrogen fluoride pollution a global as well as local environmental problem.

Hydrogen fluoride can enter the body either by inhalation of air containing hydrogen fluoride or by dermal contact with hydrofluoric acid (dissolved form of hydrogen fluoride). Dermal contact with hydrofluoric acid occurs mainly in the occupational setting. Inhalation of air containing hydrogen fluoride can cause irritation of the eyes, nose and throat. Exposure to high levels may cause muscle spasms and can damage the lungs and heart and in extreme cases can result in death.

In Ireland there is no Ambient Air Quality Guideline relating to HF, therefore the limits used in this assessment are given in the table 3.5 overleaf and are taken from the

German VDI (2002) Technical Instructions on Air Quality, and the WHO ambient air Guideline 2000.

TABLE 3.6 AMBIENT AIR QUALITY GUIDELINES FOR HF			
Country/Institution	**Concentration**	**Averaging period**	**Implementation Date**
German VDI	3 µg/m^3	98th%tile of 1-Hourly Averages	2002
WHO	0.3 µg/m^3	Annual Average	2000

4.0 DISPERSION MODELLING DESCRIPTION

4.1 Introduction

Any material discharged into the atmosphere is carried along by the wind and diluted by wind turbulence which is always present in the atmosphere. This process has the effect of producing a plume of polluted air that is roughly cone shaped with the apex towards the source and can be mathematically described by the Gaussian equation. Atmospheric dispersion modelling has been applied to the assessment and control of odour for many years, originally using Gaussian form ISCST 3 and more recently utilising advanced boundary layer physics models such as ADMS and AERMOD. Once the emission rate from the source is known (g/s), the impact on the surrounding vicinity can be estimated. These models can effectively be used in three different ways. Firstly, to assess the dispersion of pollutants and to compare with the appropriate Air Quality Standards (AQS), secondly, in a "reverse" mode, to estimate the maximum pollutant emissions which can be permitted from a site in order to prevent significant air quality impact occurring and thirdly, to determine which process is contributing greatest to the ambient air quality impact and estimate the amount of required abatement to reduce this impact to within acceptable levels. In this latter mode, models have been employed for imposing emission limits on industrial processes, odour control systems and intensive agricultural processes.

4.2 AERMOD

AERMOD is a new generation air modelling system used to support regulatory and non-regulatory modelling requirements worldwide. The application is used to assess the impact of air emissions from industrial sources, and can predict pollutant concentrations from point, line, area, volume, and flare sources with variable emissions in all terrain regimes. AERMOD simulates essential atmospheric physical processes and provides refined concentration estimates over a wide range of meteorological conditions and modelling scenarios. The state-of-the-science dispersion modelling system includes:

- An advanced meteorological pre-processor to compute site-specific planetary boundary layer (PBL) parameters;
- Highly developed dispersion formulations that incorporate current PBL understanding and variables for both convective and stable boundary inversions
- Enhanced treatment of plume rise and plume penetration for elevated inversions allowing for effects of strong updrafts and downdrafts that occur in unstable conditions;
- Improved computation of vertical profiles of wind, turbulence, and temperature;
- Sustained treatment of receptors in terrain ranging from flat to complex;

- In homogeneity of the atmosphere by calculating dispersion as a function of height; and
- A "dividing streamline" approach for computations in complex terrain.

Percentile analysis for pollutant emissions are calculated for the maximum 1-hour averages and 24hr averages using the Analyst 3D post-processing utility. This utility determines the maximum concentration of a pollutant from all receptors at a specific percentile, for a specific averaging period. Employing the percentile facilitates the omission of unusual short term meteorological events that may cause elevated pollutant concentrations and hence a more accurate representation of the likely average pollutant concentrations over an averaging period.

The most recent version of both the AERMOD and 3DAnalyst software was applied in this assessment:

AERMOD version 7.7.1 Pro Plus
3D Analyst version 2.2.5.1. AERMOD pro plus

5.0 DISPERSION MODELLING ASSESSMENT

5.1 Emission Parameters

The significant air emission from the proposed Jenbacher Biogas Engine identified from the technical specifications submitted to Anua for the original assessment were SO_2, NO_2 and CO. Subsequent to this assessment Anua were contracted by Clean Ireland to also include in H_2S, HCl and HF on foot of correspondence between the EPA and Mr. Paddy Hedigan of Clean Ireland dated the 26/03/2013. The relevant input data for the model is shown in Table 5.1 below

TABLE 5.1 BIOGAS ENGINE INPUT DATA

Parameter	Emission Concentration (mg/m^3)	Volumetric Flow rate (m^3/s)	Emissions rate (g/s)
SO_2	300	1.30	0.142
NO_2	500	1.30	0.236
CO	1000	1.30	0.472
H_2S	5	1.30	2.36×10^{-3}
HCl	30	1.30	0.014
HF	5	1.30	2.36×10^{-3}

TABLE 5.2 EMISSION PARAMETERS BIOGAS STACK - MAX HOURLY RECORDED VOLUMETRIC EMISSION				
Parameter	**8m Stack**	**10m Stack**	**12m Stack**	**14m Stack**
X-Co-ordinate	470236.8	470236.8	470236.8	470236.8
Y-Co-ordinate	5842955.5	5842955.5	5842955.5	5842955.5
Base Elevation (m)	36.5	36.5	36.5	36.5
Release Height (m)	8	10	12	14
Volume Flow (m^3/s)	1.30	1.30	1.30	1.30
Stack Temperature (^ok)	723	723	723	723
Stack Dimensions	0.25	0.25	0.25	0.25
SO_2 Emission rate (g/s)[Note 1]	0.142	0.142	0.142	0.142
NO_2 Emission rate (g/s)[Note 2]	0.236	0.236	0.236	0.236
CO Emission rate (g/s)[Note 3]	0.472	0.472	0.472	0.472
H_2S Emission rate (g/s)[Note 4]	2.36×10^{-3}	2.36×10^{-3}	2.36×10^{-3}	2.36×10^{-3}
HCl Emission rate (g/s)[Note4]	0.014	0.014	0.014	0.014
HF Emission rate (g/s)[Note 4]	2.36×10^{-3}	2.36×10^{-3}	2.36×10^{-3}	2.36×10^{-3}
Periods of Operation [Note 5]	24 hours	24 hours	24 hours	24 hours

Note 1: Emission rate is based on emission concentration of 300mg/Nm^3

Note 2: Emission rate is based on emission concentration of 500mg/Nm^3

Note 3: Emission rate is based on emission concentration of 1000mg/Nm^3

Note 4: Emission rate is based on emission concentrations specified by the EPA for H_2S 5mg/m^3, HCL 30mg/m^3 and HF 5mg/m^3

Note 5: This period of operation is worst case. The actual operating hours were unknown at time of this assessment

5.2 Modelled Domain/Receptors

Two Cartesian receptor grids were constructed for this assessment firstly a grid of 22 x 22 receptor points (total of 484 receptors) spaced 50 metres apart. The co-ordinates of these receptor grid corners are given below:

NW Corner (469800, 5843605) [Easting, Northing]
NE Corner (470850, 5843605) [Easting, Northing]
SW Corner (469800, 5842555) [Easting, Northing]
SE Corner (470850, 5842555) [Easting, Northing]

The second smaller Cartesian receptor grid was constructed of 17 x 27 receptor points (total of 459 receptors) spaced 10 metres apart. The co-ordinates of these receptor grid corners are given below:

NW Corner (470170, 5843180) [Easting, Northing]
NE Corner (470330, 5843180) [Easting, Northing]
SW Corner (470170, 5842920) [Easting, Northing]
SE Corner (470330, 5842920) [Easting, Northing]

In addition, receptors were located at selected locations on the boundary of the site. The site boundary is indicated in Figure 5.1 as a purple line.

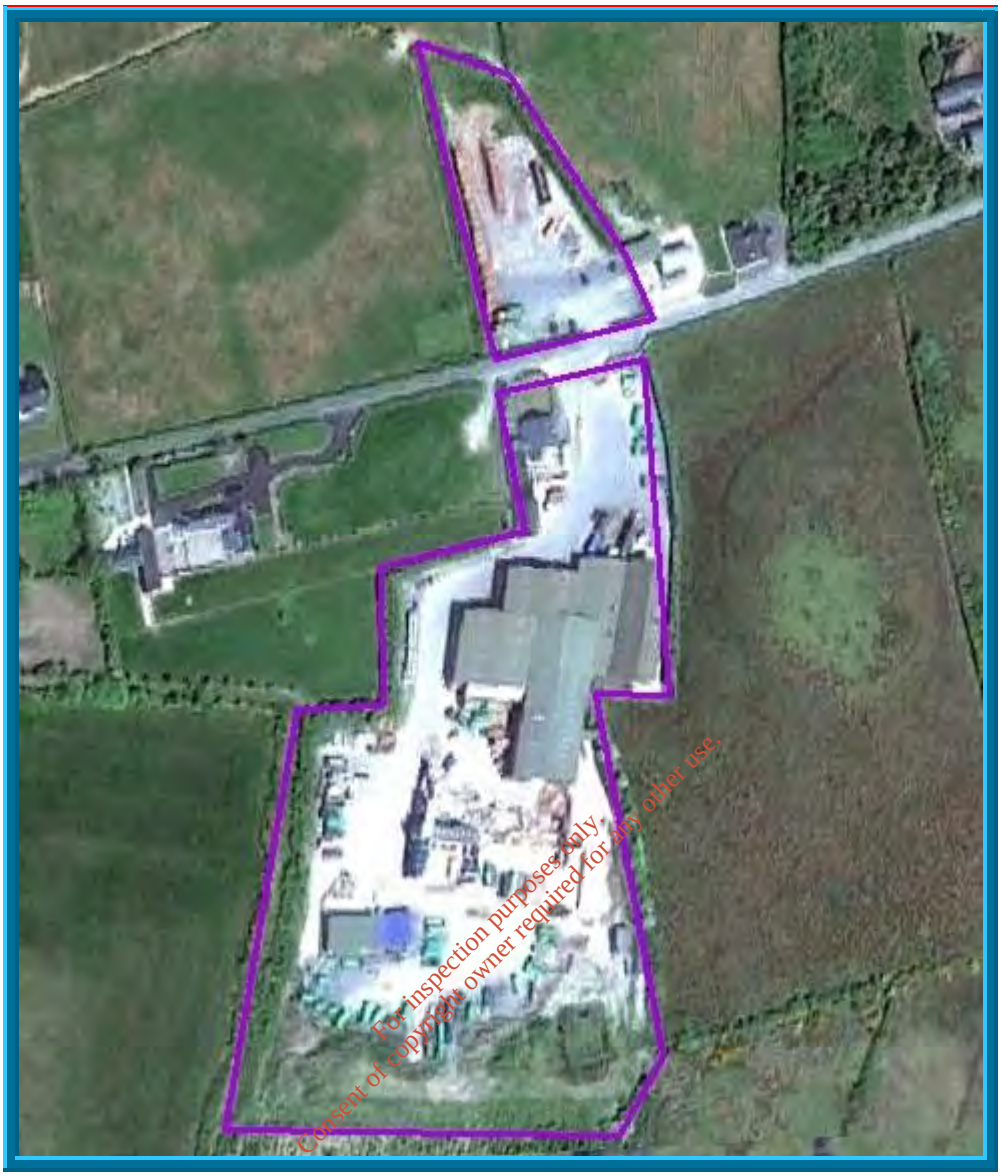

Figure 5.1 Site boundary

5.3 Meteorology/Surface Characteristics

The meteorological data for five years, from 2007 to 2011, for Belmullet Meteorological Station was used in the dispersion modelling assessment. This meteorological station is approximately 170km from the Clean Ireland facility location. The meteorological data for 2009 was identified as the worst case met year for this assessment (see Table 6.1 in results section). A graphical depiction of the frequency of wind speed and wind direction for 2009 is highlighted in Figures 5.2 below.

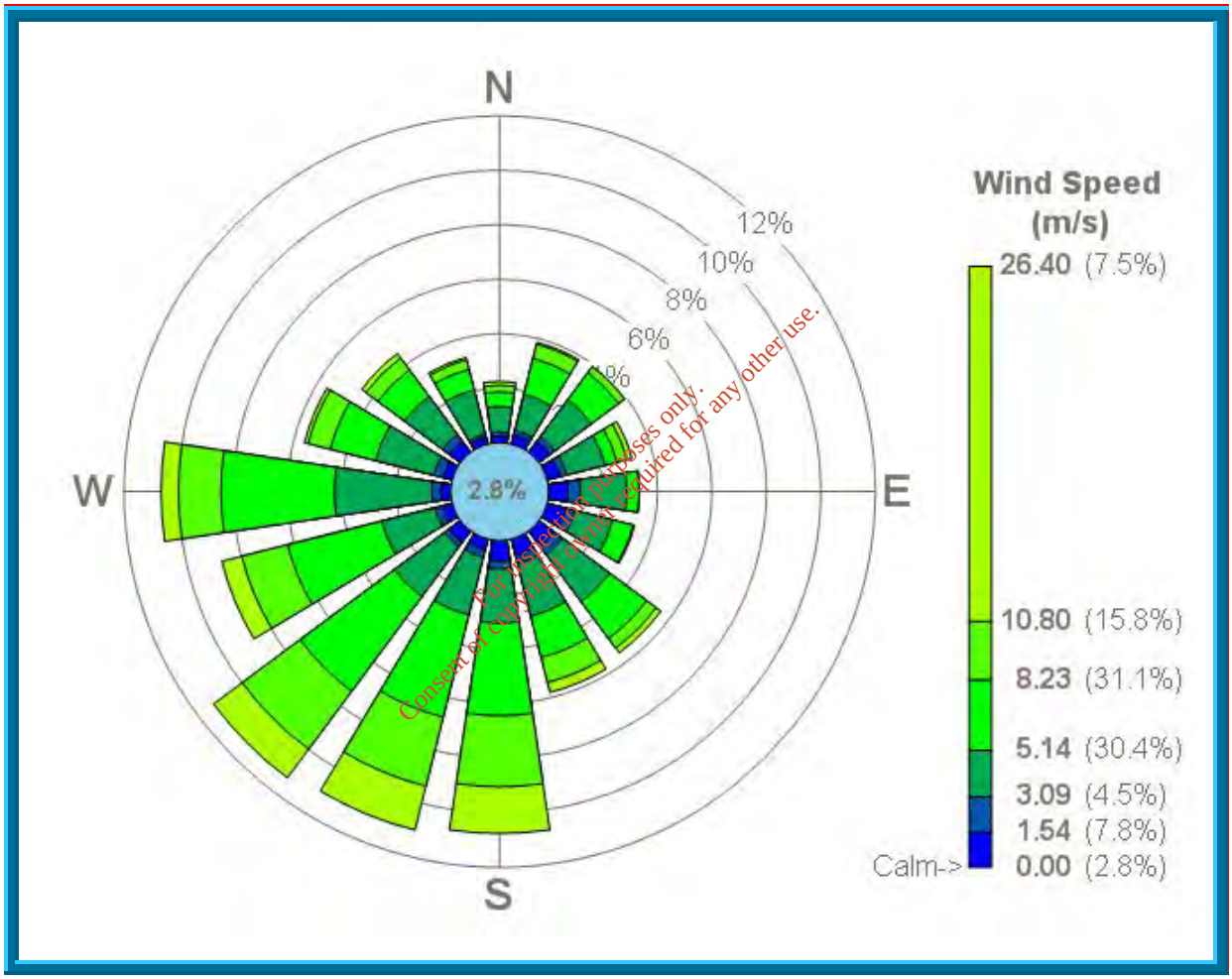

Figure 5.2 Windrose for Belmullet meteorological station 2009

The surface characteristics in the surrounding area of the Belmullet Meteorological Station are relatively uniform with significant areas of grassland and water. Also, there are a number of sections of bogland in the surrounding area. These characteristics were incorporated into the meteorological data using the AERMET program. Using this program the data was processed from Stage 2 to Stage 3 using the site specific surface characteristics. The three surface characteristics for each type of land use (bog, grassland and water) were inputted into the AERMET program prior to processing to the Stage 3 phase. The three characteristics are surface roughness {z_o}, the Albedo { r } and the Bowen ratio { B_o}.

5.4 Treatment of Terrain

The terrain grid was constructed based on the ordnance survey maps and of the surrounding area. Grid references of know elevations were collated and using the SURFER 8 Contouring and surface mapping program a terrain grid corresponding to the receptor grid was created.

The elevations of the receptor locations were obtained from ordnance survey maps of the area. Elevations and heights of the surrounding terrain were obtained from a 1:50,000 scale discovery series ordnance survey map. Elevations were taken from map contours and bench marks throughout the area of the receptor grid. Terrain heights were taken into account for all of the modelling undertaken.

For the purpose of this modelling assessment elevated terrain data was used. The terrain heights ranged from 17 meters. to 40 meters.

5.5 Treatment of Buildings and Site Plan

All buildings proposed and existing as shown on the planning application were included in the dispersion model. Table 5.4 below outlines the description, location and dimensions of each of the buildings inputted into the model.

TABLE 5.4 CHARACTERISTICS OF SIGNIFICANT ON-SITE BUILDINGS

Building ID	Description	x co-ordinate	y co-ordinate	Elevation	Height
COMPLA	Composting Plant	470200.8	5843017	36.5	10.72
ENGSHP	Engineering Workshop	470196.8	5843075	36	8.89
PTL	Left side of proposed timber shredding building	470244.7	5843087	35.68	10.23
PTR	Proposed Timber shredding shed Right	470264.4	5843050	35.1	10.3
DMR	Dry Mix Recyclable Processing	470262.9	5843124	35.1	8.1
BMA	Baling of Material Area	470290.4	5843125	32.84	7.91
A1	Long narrow part of exisiting shed	470304.1	5843122	34.01	10.11
A2	Short piece to side of main shed	470309.5	5843099	33.48	10.66
A3	Exisiting shed no given ID	470248.2	5843111	35.68	10.23
A4	Existing shed structure in middle of main shed	470274.2	5843106	35.68	10.3
DDS	Drop down skip processing Area	470271.2	5843087	34.42	10.3
OFFICE	Office block	470267	5843170	34.695	6.5
5UWZT001	Shower and stores	470264.8	5843158	34.31	4.58
OFFICE2	Office building 2	470264.6	5843148	34.31	5.1
GLASS	glass bunker	470251.3	5843274	31	4.65
BIO1	Biofilter	470238.2	5842956	36.5	4.553
PUMP.S	Pumping station	470291.6	5842974	36.5	4

The site boundary and location of each building within the site was obtained from an autocad site layout drawing supplied by Clean Ireland which was geo-referenced and overlaid on an aerial photograph of the site using ArcMap10. The main processing (existing and proposed extension) building has been split into a number of sections to more accurately reflect the variation in roof height within this structure (Building highlighted blue in Table 5.4)

5.6 Conversion Ratios for NOx/NO_2

In determining the impact of Nitrogen Dioxide from combustion sources it is important to note that of the Nitrogen Oxides, Nitric oxide is the most significant form emitted (typically more than 90%). Conversion of Nitric oxide takes place in ambient air and the conversion rate is dependent on a number of factors such as ambient Ozone concentration, presence of daylight and the presence of organic compounds and radicals. The Air Dispersion Modelling Guidance note (AG4) produced by the EPA outline the approach taken to estimating the portion of the nitrogen oxide emission converted to nitrogen dioxide.

As per Appendix H of the guidance note the approach taken was to apply the Plume Volume Molar Ratio Method (PVMRM). The PVMRM uses both plume size and O_3 concentration to derive the amount of O_3 available for the reaction between NO and O_3. The number of O_3 moles is determined by the size of the plume segment and the measured background ambient O_3 concentration. For a given NO_x emission rate and ambient ozone concentration, the NO_2/NO_x conversion ratio is primarily controlled by the volume of the plume. The method has been shown to give better agreement with monitoring data than other methods as a function of downwind distance from the source. The default options in AERMOD-PVMRM are used namely:

- For background ozone, a single representative value (54.6µg/m^3 – Average of Zone D figures for 2010,2009 and 2008)
- NO_2/NO_x equilibrium ratio = 0.90
- NO_2/NO_x in stack ratio = 0.75

5.7 Background Pollutant concentrations

The Irish EPA carries out ambient air quality monitoring under the specific requirements of the Air Quality Standards Regulations 2011. These regulations require that the EPA provide the public with information on ambient air quality. This information must be up to date and available on a widespread basis. These regulations are a result of the Air Framework Directive 2008/50/EC. This directive requires that member states divide their territory into zones for the assessment and management of air quality. In Irelands case there are four zones ranging from Zone A to Zone D. The extent of monitoring and assessment in each zone is determined by population size and air quality status. The facility location falls within Zone D (the predominantly rural zone). Therefore the average air quality levels recorded by the EPA for this zone will be used as the background concentrations for this assessment. Table 5.5 below outlines the background level applied in the assessment.

TABLE 5.5 BACKGROUND LEVELS[NOTE 1] OF NO_2, SO_2, AND CO

Year	Parameters	Concentration (µg/m^3)
2010	NO_2 Annual	7.7
	NO_2 Hourly Maximum	87.3
	NO_X annual	11.7
	Ozone	55.2
	CO	0.004
	SO_2 Annual	2.5
	SO_2 Daily Maximum	10.5
	SO_2 Maximum Hourly	17.0
2009	NO_2 Annual	7.3
	NO_2 Hourly Maximum	74.7
	NO_X annual	10.3
	Ozone	57.9
	CO	0.3
	SO_2 Annual	5.0
	SO_2 Daily Maximum	13.3
	SO_2 Maximum Hourly	38.8
2008	NO_2 Annual	11.4
	NO_2 Hourly Maximum	109.0
	NO_X annual	20.2
	Ozone	50.7
	CO	0.4
	SO_2 Annual	4.8
	SO_2 Daily Maximum	18
	SO_2 Maximum Hourly	58.4

Note 1: Background levels were taken from 'Air Quality in Ireland 2008, 2009 and 2010- key indicators of Ambient Air Quality' EPA respectively

Note 2: There is no available background data for concentrations of H_2S, HF and HCl

Using the background concentrations outlined in Table 5.5 and applying the guidance outlined in Appendix E of the Air Dispersion Modelling from Industrial Installations Guidance Note (AG4), the background adjusted predicted impacts can be calculated. The rules governing the combing of Short term process contribution with Background Concentration are outlined below. These guidelines are taken from the UK DEFRA and are applied to the NO_2, SO_2 and parameters.

NO_2 – The 99.8th%ile of total NO_2 is equal to the minimum of either A or B below:

a) 99.8th%ile hourly background total oxidant (O_3 & NO_2) + 0.05 x (99.8th%ile process contribution NO_x)
b) The maximum of either

- 99.8th%ile process contribution NO_x + (2 x annual mean background NO_2); or
- 99.8th%ile Hourly background NO_x + (2 x annual mean process contribution NO_x)

SO_2 – The 99.7th%ile of total 1- hour SO_2 is equal to the maximum of either A or B below:

a) 99.7th%ile Hourly background SO_2 + (2 x annual mean process contribution SO_2); or

b) 99.7th%ile hourly process contribution SO_2 + (2 x annual mean background SO_2)

C – The 99.2th%ile of total 24- hour SO_2 is equal to the maximum of either A or B below:

a) 99.7th%ile 24 hour mean background SO_2 + (2 x annual mean process contribution SO_2); or

b) 99.7th%ile 24 hour mean process contribution SO_2 + (2 x annual mean background SO_2)

In the case of annual averages and CO, these are combined with the background annual averages to calculate the projected annual levels**.**

6.0 ASSESSMENT OF IMPACTS

6.1 Predicted Maximum Ground level impacts at the boundary from 8m Stack 2007-2011

TABLE 6.1 PREDICTED GROUND LEVEL IMPACTS AT 0R BEYOND THE BOUNDARY – 8 METRE STACK 2007-2011								
Year	**Parameter**	**Averaging Period**	**Process contribution Predicted Conc.**	**Grid Reference**		**Background Adjusted Predicted Impact** Note 2	**Limit Values**	**% Of Limit Value**
			(µg/m^3)	**X co-ordinate**	**Y co-ordinate**	**(µg/m^3)**	**(µg/m^3)**	
2007	Nitrogen Dioxide Note 1	1 hr average as a 99.8 percentile	151.6	470193.3	5843053	169.2	200	84.6
2008	Nitrogen Dioxide Note 1	1 hr average as a 99.8 percentile	122.1	470193.1	5843047	139.7	200	69.8
2009	**Nitrogen Dioxide Note 1**	**1 hr average as a 99.8 percentile**	**158.4**	**470193.1**	**5843047**	**176.0**	**200**	**88.0**
2010	Nitrogen Dioxide Note 1	1 hr average as a 99.8 percentile	154.0	470193.1	5843047	171.6	200	85.8
2011	Nitrogen Dioxide Note 1	1 hr average as a 99.8 percentile	126.9	470193.3	5843053	144.5	200	72.2

Note 1: Levels of predicted Nitrogen Dioxide are estimated using the PVMRM utility. This approach is outlined in Section 5.7.

Note 2: Adjusted background predicted impact was calculated using – 99.8th%ile process contribution NOx + 2 x (annual mean background NO_2), as this information was used for selecting worst Met year.

TABLE 6.2 PREDICTED GROUND LEVEL IMPACTS AT OR BEYOND THE BOUNDARY – 2009							
Parameter	**Averaging Period**	**Process contribution Predicted concentration**	**Grid Reference**		**Background Adjusted Predicted Impact**	**Limit Values**	**% Of Limit Value**
		($\mu g/m^3$)	**X co-ordinate**	**Y co-ordinate**	**($\mu g/m^3$)**	**($\mu g/m^3$)**	
Nitrogen Dioxide Note 1	**1 hr average as a 99.8 percentile**	**158.4**	**470193.1**	**5843047**	**176.0**	**200**	**88.0**
	Annual Average	7.9	470307.3	5842996.9	16.7	40	41.7
Sulphur Dioxide	1 hr average as a 99.73 percentile	95.3	470193.1	5843047	103.5	350	29.6
	Daily average as a 99.18 percentile	38.4	470192.4	5843032	46.6	125	37.3
	Annual Average	5.3	470307.3	5842996.9	9.4	20	46.8
CO	Annual Average	0.3 mg/m^3	470185.4	5842987	0.6 mg/m^3	10 mg/m^3	6.3
H2S	1 hr Average	0.95	470186.6	5842993	n/a	7	13.6
	24 hr Average	0.30	470185.4	5842987	n/a	150	0.2
HCl	1 hr average as a 98percentile	5.06	470189.5	5843008	n/a	100	5.1
HF	1 hr average as a 98percentile	0.84	470189.5	5843008	n/a	3	28
	Annual Average	0.02	470165.5	5843133	n/a	0.3	6.7

Note 1: Levels of predicted Nitrogen Dioxide are estimated using the PVMRM utility. This approach is outlined in Section 5.7.

TABLE 6.3 PREDICTED GROUND LEVEL IMPACTS AT OR BEYOND THE BOUNDARY – INCREASING STACK HEIGHT								
Parameter	**Averaging Period**	**Stack Height (m)**	**Process contribution Predicted concentration**	**Grid Reference**		**Background Adjusted Predicted Impact**	**Limit Values**	**% Of Limit Value**
			(µg/m^3)	**X co-ordinate**	**Y co-ordinate**	**(µg/m^3)**	**(µg/m^3)**	
Nitrogen Dioxide Note 1	1 hr average as a 99.8 percentile	8	158.4	470193.1	5843047	176.0	200	88.0
		10	139.6	470193.1	5843047	157.2	200	78.6
		12	122.8	470193.1	5843047	140.4	200	70.2
		14 Note 2	111.8	470170	5843040	129.4	200	64.7
		16	92.7	470193.1	5843047	110.3	200	55.2

Note 1: Levels of predicted Nitrogen Dioxide are estimated using the PVMRM utility. This approach is outlined in Section 5.7.

Note 2: This was deemed the must suitable stack height based on impact on ambient air quality and visual impact of the structure.

TABLE 6.4 PREDICTED GROUND LEVEL IMPACTS AT OR BEYOND THE BOUNDARY – 2009 -14M STACK							
Parameter	**Averaging Period**	**Process contribution Predicted concentration**	**Grid Reference**		**Background Adjusted Predicted Impact**	**Limit Values**	**% Of Limit Value**
		(µg/m^3)	**X co-ordinate**	**Y co-ordinate**	**(µg/m^3)**	**(µg/m^3)**	
Nitrogen Dioxide Note 1	**1 hr average as a 99.8 percentile**	**111.8**	**470170**	**5843040**	**129.4**	**200**	**64.7**
	Annual Average	7.8	470307.3	5842996.9	16.6	40	41.4
Sulphur Dioxide	1 hr average as a 99.73 percentile	69.8	470170	5843040.0	78.0	350	22.3
	Daily average as a 99.18 percentile	29.1	470192.4	5843032	37.3	125	29.9
	Annual Average	5.2	470307.3	5842996.9	9.3	20	46.5
CO	Annual Average	179.1	470170	5842980	546	10000	5.5
H2S	1 hr Average	0.66	470186.6	5842993	n/a	7	9.4
	24 hr Average	0.27	470185.4	5842987	n/a	150	0.2
HCl	1 hr average as a 98percentile	3.93	470193.1	5843047	n/a	100	3.9
HF	1 hr average as a 98percentile	0.65	470193.1	5843047	n/a	3	21.7
	Annual Average	0.09	470307.3	5842997	n/a	0.3	30

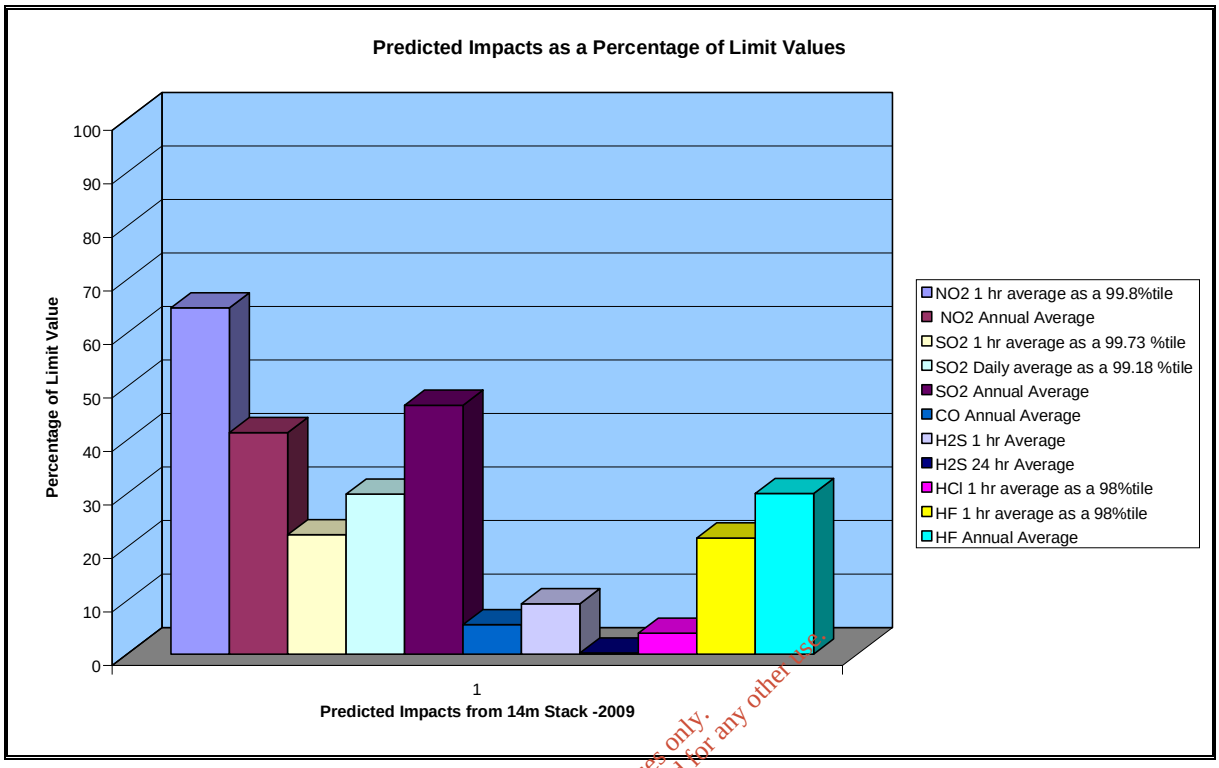

Figure 6.1 Comparison of predicted impacts with the appropriate limit values expressed as a percentage

6.2 Sensitivity Analysis

6.2.1 Meteorological Data

The sensitivity of the predicted impacts was examined against the met data set (Belmullet 2007 to 2011) used for the assessment using the pollutant of highest impact namely NO_2. The results of this sensitivity analysis are shown in Table 6.1 and clearly demonstrates that the maximum predicted impact for NO_2 occurs using the 2009 data set.

6.2.2 Stack Heights

The results of varying stack height on ambient air quality impact are clearly shown in table 6.3. NO_2 hourly was modelled using the 2009 met set against varying stack heights from 8m to 16m. As expected the predicted maximum impact off site decreases with each increase in stack height. A stack of 14m is deemed sufficient to ensure dispersion of stack emissions from the Biogas engine which do not result in ambient concentrations above the ambient air quality standards set out in S.I 180 of 2011.

6.2.3 Volume Flow

This assessment was conducted using the theoretical maximum volumetric flow in all model runs, and assuming 24hour operational on a yearly basis. Any alteration of these figures will result in a decrease in ambient air quality impact as predicted by the model runs completed in this assessment.

6.3 Discussion of Results

The results in Table 6.1 show that the Met conditions in 2009 would lead to the greatest impact on ambient air quality based on the provided emission concentrations and volumetric flow rates. Therefore the 2009 met set was used as the worst case scenario for determining the required stack height to meet ambient quality standards.

Table 6.2 sets out the results of predicted impacts based on the 2009 met set from an 8m stack on ambient air quality when the other emission parameters from the biogas engine were considered to ensure that hourly NO_2 was having the highest impact on the ambient air quality. The results when converted to a percentage of the Ambient air quality limits clearly show that hourly NO_2 impact is by far the greatest at 88% of the limit value with annual SO_2 46.8% of the ambient limit the next highest impact value.

Table 6.3 presents the resultant impact of increasing stack height on the ambient air quality beyond the site boundary for hourly NO_2 based on 2009 met conditions. To ensure the ambient air quality limits would not be breeched the background levels of NO_2 were added to the highest predicted NO_2 process contribution beyond the boundary. Background levels were averaged from 'Air Quality in Ireland 2008, 2009 and 2010- key indicators of Ambient Air Quality' reports published by the EPA. As can be seen from the results the ambient air quality standards were not breeched at any of the modelled stack heights, however due to the recognised inherent uncertainty in model accuracy a stack of 14m is deemed sufficient to achieve an ambient impact of less than two thirds the ambient air quality standard limit.

Table 6.4 presents the results of model runs conducted to ensure that a stack of 14m would result in the required dispersion for all the emission parameters associated with the proposed biogas engine namely NO_2 SO_2, CO, H_2S, HCl and HF. The results clearly show that all ambient air quality standards would be met with a stack height of 14m and are also presented graphically in Figure 6.1

6.3 Conclusions

Comparison of the predicted impact of all suggested stack heights indicate that a stack height of 14m for the proposed Biogas engine will result in the emissions not having a significant impact on ambient air quality at the boundary or beyond the boundary of the facility on the surrounding area. The model contains a number of significant assumptions (such as 24 hour operation of the biogas engine) which would indicate that the actual impact on ambient air quality would be significantly lower than that presented in the assessment.

Appendix 1
Isopleths